

Colonialism on the Cheap: The French Empire 1830-1962

Le colonialisme au rabais : l'Empire français, 1930-1962

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Résumé

Combien la France a-t-elle payé pour son empire colonial ? Les colonies ont-elles bénéficié d'importants transferts de la part des contribuables français et des investisseurs privés, ou au contraire leur capital a-t-il été ponctionné ? Jusqu'à présent, Jacques Marseille (1984) a été le seul à étudier ces questions, en déduisant du déficit commercial structurel des colonies françaises qu'elles constituaient un lourd fardeau financier pour la France. Nous collectons des données d'archives inédites sur les budgets et les prêts, et calculons les flux monétaires publics entre la France et les colonies entre 1833 et 1962. Nous fournissons également des chiffres sur les investissements coloniaux privés par l'intermédiaire de la Bourse de Paris. Les dépenses publiques consacrées par la France à l'Empire ne représentaient que 1,3 % de son PIB, dont les quatre cinquièmes étaient consacrés à l'armée. Les déficits persistants de la balance commerciale des colonies françaises ne correspondent pas à d'importants transferts de capitaux publics ou privés, car ils sont en fait contrebalancés par les dépenses militaires de la métropole. Une fois ce facteur pris en compte, la ponction coloniale de l'empire français est comparable à celle de l'Inde britannique.

Abstract

How much did France pay for its colonial empire? Did colonies benefit from large transfers from French taxpayers and private investors, or were they on the contrary drained of their capital? So far, Jacques Marseille (1984) was the only attempt to investigate these questions, by deducting from the structural trade deficit of the French colonies that they were a heavy financial burden for France. We collect novel budgetary and loan data from archives and compute public monetary flows between France and the colonies between 1833 and 1962. We also provide figures of colonial private investment through the Paris Stock Exchange. Public expenditure spent by France on the empire only represented 1.3% of its GDP, of which four fifths were in the military. The persistent trade balance deficits of French colonies did not correspond to large public or private capital transfers, as they were in fact counterbalanced by military expenditure from the Metropole. Once accounting for this, the colonial drain of the French empire is comparable to British India.

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Introduction

How much did France pay for its colonial empire? Was the cost of colonization a huge burden on France's public finances that grew overtime and became unsustainable on the eve of decolonization, as argued by the French historiography (Marseille 1984)? Was it, on the contrary, a relatively cheap endeavor, as shown by Elise Huillery (2014) for West Africa? To answer these questions, this paper delves into the French archives to reconstruct the total cost of French colonialism for French taxpayers, distinguishing between military costs and civil subsidies to the colonies. We also reconstruct a partial international balance of payments of the French colonial empire to shed some light on the private and public monetary flows between France and its colonial empire. This paper provides first evidence of the small monetary transfers made by France in its colonial empire, be they public or private.

A large literature in social sciences has already documented the racist character of colonization and its human rights abuses, as well as its long-lasting impacts on the political and economic institutions of formerly colonized countries. This paper aims at contributing to this literature by providing the first quantification of the size and nature of the monetary flows between France and its colonies. The question is important because, even excluding the non-monetary costs and long-term consequences of colonization, the question of the cost of European colonization and who financed it is far from being settled. In fact, the amount of archival data needed to reconstruct the full history of expenditure for colonization and related monetary flows, public and private, between the colonizing country and the colonies is considerable, explaining why such an exercise had not yet been completed.

Early critics of colonization in the colonizing country pointed that the cost of colonization was far larger than its economic benefit. In the United Kingdom, the initial skepticism of Adam Smith (1776) towards colonialism was shared by neo-classical economists like Stanley Jevons or Alfred Marshall (O'Brien 1988). Then, in his critique of imperialism, John Hobson (1902) argued that the empire enabled the British upper class to invest their capital abroad rather than at home, hurting British workers. In France, after the conquest of Algeria started in 1830, some prominent economists also expressed criticism of the colonial project, among them Jean-Baptiste Say (Steiner 1996) or Clément Juglar (Parent and Butler 2018). In contrast, two professors at the *Collège de France*, Michel Chevalier and his son-in-law Paul Leroy-Beaulieu, were influential advocates for colonialization together with professionals linked to business or

politics (Singaravélou 2008, Clément 2013, Todd 2021). The cost of colonial occupation to the taxpayer was one of the main arguments of critics, while advocates would usually put in the balance high prospects for profits, employment, and development, if only for the metropolitan economy. In the first half of the 20th century, the colonial empire became a *fait accompli* in France and in the UK, and the argument that colonialism was too expensive was put on the back burner. However, it made a comeback in the post-WWII period of “developmentalist colonialism”, even among initially pro-colonial conservatives such as the *cartiériste* movement in France (Cooper 1996).

After the end of the colonial era, important works in economic history tried to produce a cold-minded assessment of the benefits and costs of colonialism. Lance Davis and Robert Huttenback (1986) and Patrick O’Brien (1988) estimated the flows of capital invested by Britain in its colonial empire, their rates of return, and the fiscal burden of imperial defense, for the period before 1914. These authors took over the Hobsonian view that British colonialism imposed a high tax burden on the average British taxpayer due to the huge military expenditure required to maintain the empire, for the benefit of the gentry and some London businessmen. This argument was criticized by Paul Kennedy (1989) and Avner Offer (1993) on the ground that the military cost of imperial defense was overstated. Kennedy acknowledged that the cost argument could be more valid in the 1930s, and even more in the 1950s. In any case, both Davis and Huttenback (1986) and O’Brien (1988) limited their analyses to the pre-1914 period.

Another branch of the literature studied the colonial “drain” of resources by studying balances of payments, in particular balances of trade that are easier to measure than other international flows. Since the balance of payments of a country is equal to zero by construction, a trade surplus (more exports than imports) must be balanced by outgoing payments, and *vice-versa* a trade deficit (more imports than exports) must be balanced by ingoing payments. The first economist to denounce the drain of Indian wealth by the British colonizer was perhaps Dababhai Naoroji (1901). Angus Maddison (1971) confirmed that India’s balance of trade with the United Kingdom was in structural surplus until independence in 1947. This implied monetary flows from India to Britain during the colonial period, such as civil servant pensions, interest payments, remittances, and capital repatriation. The argument of the colonial drain of India was later reformulated by Irfan Habib (1995) and Aditya Mukherjee (2010). The analysis of Indonesian balances of payments revealed an even larger colonial drain to the Netherlands (Maddison, 1989; van der Eng, 1998).

Studying the case of the French empire, Jacques Marseille (1984) found that the trade balance of French colonies was on the contrary in structural deficit, which led him to argue that

in return France made important public and private monetary transfers to the colonies. In his view, the colonial empire thus represented a financial burden for France and retarded the modernization of its economy because the capital invested in the colonies would have been more profitable if invested in France. While the thesis of Marseille has been considered authoritative by many scholars (Bairoch, 1988; Fitzgerald, 1988; Dormois and Crouzet, 1998; Etemad, 2005), the idea that French private investments in the colonies had turned less profitable after WWII was contradicted by Saul (2016) for the North African case. In this paper, we examine Marseille's argument that the empire was expensive because French colonies received large capital transfers from France.

The novelty of this paper is that rather than using only the balance of trade, we directly collect data on the monetary flows between France and its colonies, both public and private. Huillery (2014) quantified the public expenditure for French West Africa and found that the cost for France was minimal as West Africa received very little public aid from France. In this paper, we extend her work in two important ways. First, we study French public expenditure for the whole second French colonial empire between 1830 (beginning of the colonization of Algeria) and 1962 (independence of Algeria). The second French colonial empire included Algeria, Tunisia, Morocco, the federations of French West Africa (*Afrique Occidentale Française*, AOF) and of French Equatorial Africa (*Afrique Equatoriale Française*, AEF), Togo, Cameroon, Madagascar, and the Indochinese Union (see Figure 1), corresponding to 21 present-day countries.¹ A few short-lived or small colonies are not included in our analysis but they represented only a small part of France's second colonial empire (maximum 6% of the French empire's population in 1937).² Second, we collected data on monetary flows other than public expenditure, such as the large loans taken out by the colonies with French lenders as well as private investments in the colonies through the Paris Stock Exchange. These data allow us to provide new evidence on the monetary flows between France and its colonies and on how the structural trade deficit of French colonies was compensated.

¹ The AOF corresponds to the following present-day countries: Benin, Burkina-Faso, Côte d'Ivoire, Guinea, Mali, Mauritania, Niger, and Senegal. The AEF corresponds to the following present-day countries: Chad, Central African Republic, Congo-Brazzaville, and Gabon. The Indochinese Union corresponds to the following present-day countries: Vietnam, Laos, and Cambodia.

² The following colonies are excluded from the analysis; the League of Nations mandates of Lebanon and Syria, the small territory of Djibouti, the Comoros and Pacific Ocean islands, and the remains of the first colonial empire acquired before 1830 (the French West Indies and Guyana, the Réunion Island, and the five trade posts of India). According to the *Annuaire Statistique de la France* 1937, the population of French colonies not included in our paper was 4,716,000 inhabitants and the population of the French colonies included in our paper was 74,555,000 inhabitants, hence 94% of the total. The most important parts not included were Lebanon and Syria which accounted for 4% of French empire population, between 1920 and 1945 only.

Results reveal that French public expenditure in the colonial empire over the period 1833-1962 represented only 1.3% of French GDP, 82% of which were military expenditure. The public cost of the colonies was disproportionately larger in the last period 1946-1962 (3.2% of French GDP) than in earlier periods (0.4% in 1833-1869, 0.5% in 1870-1919, and 0.6% in 1920-1939), mostly because of the high cost of Indochina and Algeria's wars of independence. Even when accounting for the debt that may have been forgiven after independence, development aid to the colonies represented only 0.2% of French GDP over the period, well below today's international target of 0.7%. Even from the point of view of the colonies, development aid was not an overwhelmingly important resource, representing 1.9% of colonial GDP on average.

If public aid to the colonies was small, what compensated for the structural trade deficits of French colonies? By reconstructing as many items as we can of the balance of payments of colonies, we find that colonies' large trade deficits were not primarily compensated by public aid nor private capital, but by military expenditure spent locally in the colonies, notably during the wars of independence in Algeria and Indochina. We also find that flows of private money going from the colonies to France (measured as a residual) could be large in certain colonies such as Indochina, Algeria, and Equatorial Africa. In fact, after accounting for military expenditure spent in the colonies, we find that the colonial drain of French colonies was comparable to the drain in British India computed by Maddison (1989).

This paper provides two important contributions to the economic history literature. First, it provides the first evidence that French colonialism was not a financial burden for France. The empire became more expensive at the end of the colonial period because of the military costs of independence wars, and not because of large public or private investments in the colonies. Second, the analysis of the monetary flows between France and its colonies shows how colonial trade deficits were compensated and unveils a significant colonial drain of French colonies. Overall, French colonialism was thus colonialism on the cheap, with the exception of the costly attempts to maintain domination at the end of the period. Our results profoundly revise the conventional wisdom established by Marseille (1984).

However, our research has a few limitations. Private investments in the colonies are not precisely estimated so future research could add precision on this part of the analysis. More importantly, because we consider only the monetary flows between France and its colonies, we do not provide a complete cost-benefit analysis of colonization for the colonized and the colonizer. Notably, we do not consider the long-term economic impact of colonization that may have seriously damaged the growth prospects of former colonies by disrupting institutions and

distorting economic structures, without bringing much benefit to already industrialized countries (Bairoch 1993). As another limitation, we do not consider here the heavy tax and human burden imposed by France to the colonized populations. Likewise, the local consumption of settlers is arguably part of the benefits of colonialism for French citizens, but is not part of the balance of payments between France and its colonies, only the savings of settlers that flowed out.³

The rest of the paper is structured as follows: Section 2 presents the sources of data and the methodology used to compute the French public expenditure for the colonial empire, then results; Section 3 examines the balance of payments between France and its colonies to identify what accounted for the structural trade deficits of the colonies; Section 4 concludes.

French Public Expenditure for the Colonial Empire

Sources of Data and Definition of Variables

In this section, we present our estimation of French public expenditure for the colonial empire, distributed among central administration expenditure, military expenses, net civil subsidy, and outstanding capital at independence. Our estimates are expressed, alternately, as shares of French GDP or French government expenditure. To construct these estimates, we used a variety of archival sources, notably colonial budget accounts, French ministerial budget accounts, and archival data on colonial loans. We made several decisions to harmonize data and deal with missing observations. These sources and decisions are described in detail in the Online Data Appendix. Here, we merely give the historical context needed to understand each variable and underline the data construction decisions that we deem particularly important.

Central Administration Expenditure

The French government spent money within Metropolitan France for the management of its colonial empire. This expenditure includes the personnel and operating costs of the Ministry of the Colonies, of the Colonial School (*Ecole Coloniale*) and of the colonial exhibitions held in Paris in 1907 and 1931 (more examples are given in Huillery, 2014). It also includes the central administration expenditure of the FIDES (*Fonds d'Investissement pour le*

³ On both tax burden and French income in colonies, see Cogneau, Dupraz and Mesplé-Somps (2021), in particular Online Appendix 4.

Développement Economique et Social), a colonial public investment program created in 1946. By its nature, central administration expenditure is not allocated between the different colonies.⁴

Military Expenditure

The military expenditure of France in its colonial empire covered four main activities: the colonial conquest, the pacification of internal conflicts during the colonial period, the administration of soldiers from the colonies serving in the French Army (such as the *Tirailleurs Sénégalais*) during external conflicts (World Wars), and finally the independence wars. Soldiers from the colonies serving in the French Army were recruited locally and often transported to other places. After 1912, most of these indigenous soldiers were conscripts, only a minority (around one fifth) were volunteers, except in Morocco, Cameroon and Togo where conscription did not exist. Many of these soldiers served in Europe during WWI and WWII, but also in other colonies for the colonial conquest and independence wars. They represented a substantial addition to French soldiers.

We had to be particularly cautious in measuring colonial military expenditure, in part because most of it did not transit through colonial budgets but through the budgets of the French government (Ministry of War or Defense, of Navy, of Colonies). Disentangling colonial from metropolitan military expenditure, and allocating it to different colonies was not always straightforward, in particular after World War II. We had to rely on secondary sources and educated approximations to estimate the cost of the two independence wars of Indochina and Algeria. In the end, we are confident we managed to capture the bulk of colonial military expenditure. We did not succeed in estimating colonial military expenditure during World War II, a period with too many missing data. More detail is given in the Online Data Appendix.

We reclassified as civil subsidies part of the military expenditure that could be thought of as civilian in nature. Though military expenditure to build infrastructure and provide health services was motivated by military purposes, it also benefitted civilians, since roads, bridges, harbors, and health facilities were used by the nearby population. These reclassified health and infrastructure expenditure represent only 3.8% of military expenditure overall, with a maximum

⁴ The central administration data does not allow us to distinguish between colonies included in and excluded from this study. Therefore, we attribute the totality of the cost of central administration to the colonies included in this study, while in fact this cost also concerned the excluded ones (Lebanon and Syria 1920-1945, and the other small colonies listed in footnote 3). However, as central administration expenditure represented only one percent of total expenditure for colonies and the excluded colonies represented only a maximum of 6% of total colonial population (in 1937), this simplification does not have any incidence on our main conclusions.

of 10.5% for West Africa and Togo, and a minimum of 2.6% for Indochina. Our measure of military expenses excludes this expenditure which was counted as a civil subsidy.

Net Civil Subsidy

The Net Civil Subsidy from the French government to the colonies is composed of three elements:

(1) *Net grants to colonial budgets or public companies.* Grants were overwhelmingly flowing from Metropolitan France to the colonies but there were also flows from the colonial governmental budgets to Metropolitan France, that we subtract to obtain a measure of *net* grants. Over the whole colonial period 1833-1962, the flows of public funds from the colonies to Metropolitan France represented only 2% of the flows from Metropolitan France to the colonies. Half of these flows were coming from Indochina, mainly during the 1920s and 1930s. Grants from France to the colonies became larger after WWII through the *Fonds d'Investissement pour le Développement Economique et Social* (FIDES) created in 1946 and the Constantine plan in Algeria established in 1958 to finance large public investment in the colonies. This component represents 71% of total net civil subsidy.

(2) *Expenditure made by the military also benefitting civilians.* As explained above, we reclassified as civil subsidies a small part of the military expenditure made by the Ministries of War and of Colonies for infrastructure (railways, roads, bridges, harbors, etc.) and medical assistance (health facilities), that could be thought of as civilian in nature. This reclassified expenditure represents only 3.8% of military expenditure but 24% of the total net civil subsidy.

(3) *Implicit subsidy coming from prime interest rates of colonial loans.* We accounted for the possibility that France gave colonial governments the opportunity to benefit from loans at prime interest rates, *i.e.*, interest rates lower than what colonies would have faced on the financial market had they been independent. We collected first-hand data on colonial loans in the archives of the French Ministry of the Economy and Finance (see Online Appendix Tables A1-A4). Colonial governments began taking out loans as early as the late 19th century, but the largest loans were issued in the 1930s following the Great Depression. In fact, we must distinguish two periods: before WWII, the loans of colonial governments were discussed and coordinated by the French government, but then operated by private banks and bought by private bond holders. They were long-term loans (20 to 95 years, usually 50), and their interest rates were above the minimum rate at which the French state could borrow (taken as the rate of

the “*rente perpétuelle*”, i.e., life annuity) as shown in Figure 2.⁵ Therefore, we consider that these interest rates were in line with financial markets and did not involve any implicit subsidy to the colonies nor cost for French lenders. In contrast, after WWII, the French government directly lent money to North African and West African colonies.⁶ Figure 2 shows that the interest rates offered by the French government (between 1.5 and 3 percent), was systematically lower than the interest rate at which the French government could borrow (between 4.5 and 5.5 percent). We treated the spread between these rates as a subsidy to the colonies. We computed the counterfactual annuities that would have been due if the French government had applied to the colonies the same interest rate as what applied to itself. As the spread in interest rates remained limited, and inflation since the 30s reduced the amounts to be repaid, this component represents only 4% of the total net civil subsidy.

Outstanding Capital at Independence

To the extent that the loans made by the French government to the colonial governments in the late colonial period were not repaid after independence, the debt left pending should be counted as a monetary transfer from the French government to the colonies. Until independence, colonial budget accounts show that debt repayments were perfectly honored by all colonies. In the cases of Morocco and Tunisia, we found in the archives of the French Ministry of the Economy and Finance that the debt due at independence, in 1956, was never honored by the newly independent states and was finally cancelled in the early 1960s. To obtain an upper bound of the cost of colonies for France, we assume that Algeria and West Africa also defaulted on their public debt after their independence in 1962 and 1960—the other colonies had no pending debt capital at independence. Therefore, we calculate the pending principal of each colonial loan based on the information shown in Online Data Appendix Tables A1-A4 and consider it as repudiated debt, so as a forced subsidy of France to the colonies received at the year of independence.

Development Aid and Military Aid

To compute a measure of the development aid provided by France to its colonies, we followed the OECD definition of Official Development Assistance.⁷ Our measure of

⁵ We are grateful to Pierre-Cyrille Hautcoeur, Eric Monnet, and David Smadja for sharing with us their data on French interest rates, and in particular on the “*rente perpétuelle*”, i.e., life annuity.

⁶ The other colonies (Madagascar and Central Africa) received grants rather than loans.

⁷ See the definition at <https://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/officialdevelopmentassistancedefinitionandcoverage.htm> (accessed 10 March 2023).

development aid is therefore the sum of the net civil subsidy (which encompasses the grant element of public loans) and the outstanding capital at independence, considered as debt cancellation. As we assumed that the total amount of public debt due to France was cancelled, our measure of development aid should be considered as an upper bound.

We also computed a measure of the military aid provided by France to its colonies. It would be absurd to claim that 100% of the colonial military expenditure incurred by Metropolitan France, the majority of which was spent during the wars of conquest and independence, were military aid. However, had the colonies been independent countries, they certainly would have incurred costs for their national defense. Part of the French colonial military expenditure may therefore be considered as military aid. To estimate the fraction of military expenses entering this category, we gathered data on the military expenditure of former French colonies in the first decade after independence (see Online Appendix Table A5). On average, between 1957 and 1973, former French colonies spent 1.6% of their GDP on military expenditure. We conclude that 1.6% of each colony's GDP is a reasonable estimate of the part of French colonial military expenditure that can be considered military aid.⁸ French military expenditure in the colonies was almost always larger than 1.6% of colonial GDP. In the handful of cases where it was smaller (notably in Togo and Cameroon, where French military expenditure was limited by the League of Nations mandate status), we classified the totality of French military expenditure as military aid.

Deflator and expression as GDP shares

Our main estimates of French public expenditure for the colonial empire are expressed as shares of French GDP. We also provide estimates expressed as shares of French government expenditure. The Online Data Appendix A.6 explains the sources and methodology used to construct price indices, French GDP, and French public expenditure.

We also provide estimates of development aid to the colonies expressed as shares of colonial GDP. Colonial GDP estimates come from Cogneau, Dupraz and Mesplé-Somps (2021). Their estimates are based on multiple sources, including national accounting exercises conducted by the colonies' statistical agencies from 1947 to 1959, population estimates, estimations by various authors of historical GDP per capita growth in volume, and import and

⁸ We do not attempt to use the data of Online Data Appendix Table A5 to obtain an estimate varying by colony. Data is missing for some countries and we do not want to produce a false illusion of precision: our measure of military aid is only a crude estimate whose main role is to put an upper bound on the amount of French public spending that could be conceived as providing a service to colonized people.

export series. We first express the GDP figures in nominal terms using the local deflator provided by Cogneau, Dupraz, and Mesplé-Somps (2021), before applying the same deflator as for all other nominal flows.

Results

As can be seen in Table 1, France spent little on its colonial empire. Most of what it spent was military expenditure, not civil subsidies (what we would today classify as development aid). Even when accounting for the loans that were not repaid after independence and classifying a substantial part of the military expenditure as military aid, aid to the colonial empire represented only 0.4% of French GDP over the period.

How much did colonization cost?

Table 1, Column 1 presents the total public expenditure spent by France on its colonies over the whole colonial period 1833-1962. Columns 2-4 show the decomposition between central administration expenditure, military expenditure, civil subsidy, and outstanding capital at independence.⁹ In total, France spent 1.31% of its GDP for its colonial empire, predominantly for military expenditure representing 82% of the total. Net civil subsidies represented 13% of total spending, 16% if we account for loans likely not reimbursed after independence. The first important lesson from this exercise is thus the striking predominance of military costs over civil costs in French colonization. This was not only true during the colonial conquest in the 19th century and during the wars of independence in Indochina and Algeria after WWII, but also in the intermediary period 1900-1945. This is shown in the bottom of Table 1, giving total public expenditure and its breakdown for four historical periods. This is also apparent in Figure 3, showing the yearly evolution of civil subsidy and military expenditure.

Second striking fact, the cost was disproportionately larger in the last period 1946-1962 (3.18% of French GDP) than in earlier periods (0.36% in 1833-1869, 0.52% in 1870-1919, and 0.62% in 1920-1939). This is in very large part explained by the cost of the independence wars which occurred in 1946-1954 in Indochina and in 1954-1962 in Algeria.¹⁰ Between 1833 and 1939, military expenditure for the empire averaged 0.52% of GDP and never exceeded 1% annually (Figure 3), while in the period 1946-1962 it averaged 2.55% of French GDP – even

⁹ Military expenditure is without the years 1940-1945, for which we have no data.

¹⁰ In the rest of the empire excluding Algeria and Indochina, military expenses also increased slightly across time, from 0.15% of French GDP between 1870 and 1919, to 0.35% between 1920 and 1939 and 0.40% between 1946 and 1960. Total public expenses went from 0.18%, to 0.39% then 0.69%.

spiking at 4% of GDP during the most intense phases of the Indochina and Algeria wars (Figure 3 and bottom panel of Table 1). But civil expenditure on the empire increased as well so the share of civil expenditure in the total cost of colonization remained largely unchanged: in the period 1833-1939, civil subsidies to the colonies represented 11% of total expenditure on the empire and 0.06% of French GDP, while after 1946 civil subsidies represented 14% of total colonial expenditure (18% accounting for the loans likely not repaid after independence) and 0.45% of French GDP.¹¹

The increases in military and civil expenditure at the end of the colonial period are not unrelated. In the immediate aftermath of WWII, the legitimacy of French colonization was increasingly questioned. The Indochina War (but also anti-colonial struggles in other colonies such as in Madagascar in 1947) threatened the colonial order. France therefore shifted its colonial policy and started investing in large public investment programs. The “Investment Fund for Economic and Social Development” (FIDES) was established in 1946 to finance large infrastructure and health programs in Sub-Saharan Africa. The “Constantine Plan”, a large investment plan, was also established in 1958 in Algeria, at the height of the Independence War.¹² Though these investment programs were not negligible relative to the size of colonial economies (see below), they did not weigh heavily in the French budget, especially compared to military expenditure. Figure 4 represents civil subsidies to the colonies and military expenditure on the empire as a percentage of French central government expenditure. While colonial military expenditure represented up to an eighth of French central government expenditure at the height of the Indochina and Algeria Independence wars, civil subsidies never represented more than 4%. During more than a century, French colonization had been quite inexpensive, but, due to the combination of the independence wars and large public investment programs, it became suddenly five times costlier after WWII. The total cost of colonization represented up to 16% of total French central government expenditure at the height of the Indochina and Algeria wars, but fell back to 6% in 1962 (Figure 4).

¹¹ Between 1912 and 1974, the cost of the Portuguese empire (Angola, Mozambique, Guinea-Bissau, Cape Verde, East Timor and Portuguese India) to the economy of Portugal was in the same range, and showed the same time profile. On the whole it was slightly costlier, as the total cost reached 2.45% of Portuguese GDP over 1912-1974 (instead of 1.31% for France). While civil subsidies are very comparable (0.22% vs. 0.17%), military expenditure is double the figure for France (2% of Portugal GDP), due to the last period of bloody wars in Angola and Mozambique (3.5% of GDP between 1960 and 1974). See Lopes (2023), for calculations following the same methodology as ours.

¹² Although we kept with the total amount, between 1947 and 1952, around 17% of civilian subsidy (63.9 billion francs) was financed by US grants from the Marshall Plan, hence did not cost the French taxpayer (Bossuat, 2013, p. 521-562).

The third remarkable result is that the cost varied substantially from one colony to another.¹³ Algeria on its own accounted for half of the total cost (0.66% of French GDP), and Indochina for a fifth (0.28% of French GDP). Morocco represented 10% of the cost, Tunisia 4%. All other colonies combined (AOF, AEF, Cameroon, Togo, and Madagascar) accounted for only 13% of the total cost. Algeria had a very particular status within the empire, as a settlement colony and the only colony to be, like mainland France, divided in *départements* administered by the French Ministry of the Interior. Algeria concentrated half of French colonial expenditure overall, despite representing only 10% of the empire's population in 1925, at its greatest extent, and 25% of its GDP.¹⁴ In contrast, while Indochina represented 40% of the empire's population in 1925 and 30% of its GDP, it accounted for only a fifth of the cost. The decomposition of the total expenditure between civil and military expenditure provides evidence that the specific role of Algeria was mostly driven by military expenditure, in particular because of the war of Algerian independence. In fact, if we focus on the period between the two world wars, when the empire was at its maximum geographical extent and before the independence wars in Indochina and Algeria, we find that the share of Algeria in total colonial expenditure is only 25%, roughly its share in total colonial GDP, while the share of Indochina is 10%, well below its share in total colonial GDP.

Indeed, another remarkable result is that French colonial expenditure in Indochina was almost entirely military, the net civil subsidy being close to zero (Table 1). As can be seen in Figure 4, Indochina received positive civil subsidies in the end of the 19th century and after World War II, but for most of the colonial period, the net civil subsidy was negative, meaning that Indochinese public revenue was financing the French government. Apart from the military cost of the conquest and independence, Indochina did not cost anything to France.

How much aid was given to the colonies?

In a second step, we calculate the amount of aid that was given to the colonies, keeping in mind that aid to the colonies does not necessarily mean aid to the colonized people, as part of the aid given to the colonies was benefitting French settlers (especially in settler colonies like Algeria) and French firms. In Table 1 Column 5, we start with the amount of development

¹³ In our analysis, Cameroon is pooled with the federation of Equatorial Africa (*Afrique Equatoriale Française*, hereafter AEF), while Togo is pooled with the federation of West Africa (*Afrique Occidentale Française*, hereafter AOF).

¹⁴ Admittedly, Algeria was colonized for a longer period, but if we restrict the analysis to the post 1919 period (when Togo and Cameroon join the empire), we still find that Algeria accounted for 50% of the total cost of colonization.

aid. Following the OECD definition of Official Development Assistance, we compute development aid as the sum of the net civil subsidy and the outstanding capital at independence. Over the whole period, French development aid to the colonial empire represented 0.21% of French GDP, less than French development aid today (0.55% of French GDP¹⁵), and less than a third of the 0.7% target decided by the assembly of the United Nations in 1970. Algeria alone, one of the richest colonies and home to many French settlers, received half of total development aid over the period. As shown in the bottom panel of Table 1, development aid to the empire was extremely low for most of the colonial period: 0.04% of GDP in 1833-1869, 0.08% in 1870-1919, 0.02% in 1920-1939. Only in the late colonial period (1946-1962), do we find that French aid to its colonies reached an amount comparable to French public aid today (0.58% of French GDP). The increase in development aid at the end of the colonial period is explained not only by the large public investment programs described above, but also by the (observed or hypothetical) cancellation of the public debt left pending at independence.

Though French development aid was small expressed in terms of French GDP, it could represent large amounts relative to the size of colonial economies. Figure 5 represents civil subsidies from Metropolitan France over time in each colony or federation, as a percentage of *colonial* GDP, rather than French GDP. Civil subsidies represent 85% of French development aid to the colonies, the remaining 15% being debt forgiveness at independence. Over the entire colonial period, civil subsidies represented on average 1.9% of colonial GDP. Before WWII, civil subsidies rarely represented more than a couple percentage points of GDP. At the beginning of the FIDES plan, they represented up to 10% of GDP in West and Equatorial Africa. At the beginning of the Constantine Plan, they represented up to 16% of Algerian GDP.

Official definitions of development aid never take military aid into account. However, one could argue that colonial government not paying for external defense allowed them to direct public revenue towards more developmental aims. Column 6 of Table 1 displays our estimate of military aid to the colonies, and Column 7 displays total aid. Including military aid, total French aid to its colonial empire represented 0.38% of French GDP over the whole colonial period. In the late colonial period (1946-1962), total aid reached 0.79% of GDP. Only in the late colonial period, and only if we include military aid, did French aid to its colonial empire reach an amount in line with today's greatest donors such as Norway, Denmark or Sweden.

To conclude, France did not invest much on the development of its colonies except in Algeria and in the last fifteen years. Before WWII, the colonial empire did not weigh heavily

¹⁵ Loi n° 2021-1031 du 4 août 2021 de programmation relative au développement solidaire et à la lutte contre les inégalités mondiales (1) - Légifrance (legifrance.gouv.fr)

on French taxpayers in any respect, and even after WWII it reached the same order of magnitude as current public aid if we exclude the wars of independence. Our analysis clearly shows that the bulk of the cost incurred by French taxpayers was absorbed by the independence wars.

Overall Financial Flows in and out of the Empire

In the previous section, we have reconstructed the expenditure of the French government for the colonial empire in the 19th and 20th centuries. In terms of the balance of payments of France and of the colonies, a large share of this expenditure corresponded to flows of money from Metropolitan France to the colonies — though not 100% of this expenditure, since money spent, for example, on central administration, on military wages when troops were training in France, or on military equipment produced in France and transported with troops never reached the colonies. In this section, we attempt to reconstruct other flows in the balance of payments, not limiting ourselves to public flows but considering private flows as well. Such an exercise provides partial insight into the other side of the balance sheet of colonization: benefits. This insight is only partial, first because many of the benefits of colonization for the French did not give rise to a monetary payment (for example, land grabbing in Algeria), and second because, even focusing on monetary benefits, a balance of payment approach will necessarily miss the benefits that did not leave the colonies (for instance, the consumption of locally produced goods or services by a settler or civil servant in the colonies will not appear in the balance of payments¹⁶). However, this exercise does provide some insight into the nature of the economic relationship between France and its colonial empire. More precisely, we aim at documenting the private monetary flows in and out of the colonies.

The analysis of the costs and benefits of colonization for the colonizing and the colonized country through the analysis of balance of payments has a long history in the social sciences, especially regarding the balance of trade. Trade flows have the advantage of being relatively easy to measure. Since the balance of payments is equal to zero by construction, a balance of trade surplus (more exports than imports) must necessarily be balanced by outgoing payments —though, without additional information, one cannot know what these payments are. Conversely, a balance of trade deficit (more imports than exports) must necessarily be balanced by incoming payments. In the case of India, as early as the end of the 19th century, economists

¹⁶ Cogneau, Dupraz and Mesplé-Somps (2021, Online Appendix, p. 4) estimate that in 1925, the income share of European settlers was 49% in North Africa (for a population share of 9%), 9% in Indochina (for a population share of 0.1%), 14% in Madagascar (for a population share of 0.8%), and 2.7% in West and Central Africa (for a population share of 0.1%).

such as Naoroji (1901) denounced the drain of Indian wealth by the British colonizer in relation to Indian trade surplus vis-à-vis Great Britain. Maddison (1971) later confirmed that India's trade balance was in surplus during the entire colonial period and turned in deficit after 1947. Dutch Indonesia similarly had a structural trade balance surplus (Maddison 1989; van der Eng 1998).

With regard to the French colonial empire, Marseille (1984) pointed out that, with the exception of Indochina, the trade balances of French colonies were structurally in *deficit*. He concluded that the French colonies had received large inflows of capital from France, especially public capital, in the form of grants and loans. However, this cannot be confirmed by an analysis of the trade balance alone: many other payments can equilibrate the balance of payments, such as private capital flows or income flows. In the previous section, we showed that France's public subsidies for its colonies had been particularly low. Does it mean, then, that the colonies received large public loans, or large influxes of private capital that compensated for the trade balance deficits? In this section, by reconstructing other elements of the balance of payments of French colonies, we show that the colonies did not receive large inflows of private capital and that, in most cases, the share of French military expenditure spent locally in the colonies (including soldiers' pay) was sufficient to equilibrate the balance of payments, monetary flows not considered by Marseille (1984).

Sources of Data and Construction of Different Items of the Balance of Payments

We reconstructed as many items of the balance of payments of French colonies as we could. This was not straightforward because France started publishing (very partial) balance of payment statistics for its colonies only in 1952.¹⁷ The sources used in the previous section allowed us to compute some important items, like French aid, French military expenditure spent locally in the colonies, public loan repayments and disbursements, and debt forgiveness. We used other sources to reconstitute two additional items of the balance of payments: the balance of trade, and private investments in the colonies.

¹⁷ Starting in 1952, for all colonies or ex-colonies, the Bank of France estimated some components of the balance of payments. These are reproduced in the *Zone Franc* reports (*La Zone Franc en ... rapport publié par le secrétariat du Comité monétaire de la Zone Franc*), available for example at the *Bibliothèque nationale de France*. We do not use their estimates directly because they do not provide data before 1952, but their figures are broadly compatible with what we find in this paper for the post-WW2 period. See Figure 7 and Online Appendix C.

Balance of Trade

We computed two estimates of the balance of trade. Our preferred estimate corrects the French official imports and exports figures for each colony by the TRADHIST database of bilateral trade flows (Fouquin and Hugot 2016), built using the trade records of many industrialized countries (not only France). We show the robustness of our results to estimating the balance of trade of colonies using only French records (Online Appendix Table B1). More detail about the sources and methodology is given in the Online Data Appendix.

French Civil Subsidies

French civil subsidies are a component of the income account. It is the same variable as in the previous section, with one difference: we did not include the grant element of public loans, as it is recorded as loan disbursements in the financial account of the balance of payments.

French military expenditure spent *locally* in the colonies

While part of French military expenditure in the colonies was spent in France (to purchase for example military equipment), part of it was spent in the colonies (for example for paying French soldiers posted in the colonies), therefore entering the colonial balance of payments. In his book on the cost of Indochina's independence war, Hugues Tertrais (2002) estimated that 50% of military expenditure for this war was spent locally. We apply the same rate for Algeria's independence war as it is also consistent with some balance of payment data we could find (see Online Appendix Table B1). We assume that the share of military expenditure spent locally was larger for the other periods: 75% during the colonial conquest of Algeria (up to 1871), the conquest and pacification of Morocco (up to the Rif war in 1926), the French Madagascar expeditions (Franco-Hova wars in 1883 and 1896), and World War I; and 90% the rest of the time. We also probe the sensitivity of our results to these assumptions by assuming that a constant share of 50% of military expenditure was spent locally. As mentioned above, we did not estimate military expenditure between 1940 and 1945. We therefore cannot compute French military expenditure spent locally in the colonies during this period. Since, as we will show, this is an important item of the balance of payment, we exclude the period 1940-1945 from our balance of payment series altogether.

Public loan repayments and disbursements

The information on public loan repayments and disbursements comes from colonial budgets. We checked that this information was in line with the loan data collected in the French Ministry of Economics and Finance. Though we included the loans likely not repaid after independence in the overall cost of colonization (Table 1), we do not include them in the balance of payment series (they would enter under the category “Debt forgiveness” in the Capital Account). The reason is that this debt forgiveness, when it occurred, occurred *after* the colonial period (for example, Morocco and Tunisia became independent in 1956, but their debt was cancelled in the beginning of the 1960s).

Private investments in the colonies

We were able to partially reconstruct flows of private capital in the colonies using data on share capital called at the Paris Stock Exchange. We miss other capital inflows, raised using bonds, raised by non-listed firms, or directly invested by French or foreign households in the colonies. Our estimate is certainly a lower bound, yet the consequence of this uncertainty is quite limited for our estimates and innocuous for our conclusions as discussed in Online Appendix A.8. More detail is provided in the Online Data Appendix A.8.

Results

In Table 2, we show the components of colonial balances of payments that can be documented with our data, expressed in percentages of colonies’ GDP, over the entire colonial period (excluding 1940-1945). We organize colonial balances of payments in two parts: the current account, and the financial account. Nowadays, the International Monetary Fund uses a third account, the capital account, measuring the capital transfers between home and foreign residents that do not affect income, production, or savings. They are limited to a small number of transfers such as transfers of copyrights and trademarks (non-existent or very limited in our time period), or debt forgiveness. Though some colonial debt was forgiven, this happened after the colonial period, and we therefore do not include it in Table 2.

The current account includes a nation’s net trade in goods and services, its net earnings on cross-border loans and investments, and its net transfer payments (both governmental and private such as remittances). Payments to foreigners count as deficits (negative sign), while receipts count as surplus (positive sign). Column A reports balances of trade over the full

colonial period, for the whole colonial empire, and by colony (or federation).¹⁸ Over the entire colonial period, all colonies exhibited trade deficits, ranging from 1.2% of GDP in Indochina to 8.3% of GDP in Morocco. This reflects the fact that colonial trade balances were most often in deficit, the main exceptions being the WWI period, the second half of the 1930s (excepting Morocco and Tunisia), Indochina between 1891 and 1939, and AEF until 1913.

In the next two columns of Table 2, we report income receipts from the French government in two categories: net public subsidies from Metropolitan France to its colonies (Column B), and military expenditure by Metropolitan France spent *locally* in the colonies (Column C). French civil subsidies to the colonies were much smaller than colonial trade deficits, which contradicts Marseille's argument, with the exception of Equatorial Africa and Cameroon, where French civil transfers virtually financed the trade deficit. In the rest of the empire, these transfers from France were far from that target, even in West Africa. However, the share of French colonial military expenditure spent locally in the colonies (Column C) represents large amounts, often of similar sizes as trade deficits in Column A, which suggests that colonial military activities (in particular independence wars which represented the bulk of military expenditure) were an important source of money inflow in the colonies. Changing the rule for the share of military expenditure spent locally in peace time (50% instead of 90%) does not change the overall picture, because wartime expenditure trumps peacetime expenditure.¹⁹ In Column D, we display the colonies' public loan repayments (interests and capital), entering as a deficit (a payment from the colonies to France).²⁰ At around 0.8% of the colonies' GDP, they were not negligible in the colonies' balance of payments, especially for Tunisia (1.5% of GDP) and Morocco (1.3% of GDP).

The components presented in columns A to D represent the bulk of the colonies' current account. During the colonial period, services such as tourism, finance, counselling, etc., were not developed, and the corresponding transactions were likely minimal. Civil subsidies and military expenditure from countries other than France were virtually inexistent, and public

¹⁸ For the aggregated figures (empire, North Africa, and Sub-Saharan Africa), intra-regional trade exports and imports should cancel out in the trade balance, so that data are roughly consolidated, except when exports are priced 'free on board' (fob) and imports are priced with 'cost of insurance and freight' (cif) included. In fact, in the bilateral trade data that we use, exports are most often measured as the sum of imports from trade partners, so that they include the cif. Anyways, trade between French colonies was very limited.

¹⁹ If we assume that the share of military expenditure spent in the colonies was always 50%, like during the independence wars in Algeria and Indochina, we find the following figures: 5.1% on average, 7.6% for Algeria, 2.8% for Tunisia, 5.1% for Morocco, 6.3% for Indochina, 2.6% for Madagascar, 1.3% for West Africa and Togo, 1.8% for Equatorial Africa and Cameroon. Please recall that this assumption would be quite inconsistent with the public transfers recorded by Banque de France between 1952 and 1962 (see Online Appendix C).

²⁰ In principle, only interest should enter in the current account, and principal repayment should enter in the financial account, but we cannot distinguish interest repayments from capital repayments in our budget data.

loan repayments to inhabitants of countries other than France can be considered as minimal.²¹ One unobserved category of income transfers, however, might have been important: private transfers from residents of the colonies to French residents, such as dividends paid to owners residing in France, purchase of French land property, housing, etc. by French expatriates or settlers, remittances to their relatives in France, etc., which would enter the current accounts as a deficit. On the opposite direction, from French residents to residents of the colonies (surplus side), dividends from French assets owned abroad by rich French expatriates or settlers are also missed yet should have been limited. Likewise, remittances from migrants in France to their relatives living in the colonies became important for Algeria, Morocco, Tunisia, or Sub-Saharan countries such as Mali, but only after independence. All these unobserved transfers are grouped in Column H (see below).

Column E thus presents a current account balance that is partial, the sum of Columns A, B, C and D. For all colonies except Tunisia and Morocco, the partial current account balance is positive, which means that the inflows of public money from France in Columns B and C were large enough to compensate colonial trade deficits and debt repayments. This is mainly driven by the military expenditure spent locally in the colonies, with civil subsidies playing a smaller role in the current account. Taking the average for the whole empire, the trade deficit with the rest of the world represented an outflow of 5.1% of GDP, while military expenses spent locally by France represented an inflow of 6.7% of GDP. This finding paints a view of the colonial economy very different from the one painted by Marseille (1984): colonial trade deficits were *not* financed by substantial public aid from France, but by substantial expenditure by France to maintain French soldiers posted in the colonies and pay the wages of local soldiers serving in the French army. In the case of Tunisia and Morocco, trade deficits and debt repayments were particularly large and public transfers from France did not compensate, resulting in a negative partial current account balance (however, in the case of Tunisia, the breakdown of military expenditure between this colony and Algeria is uncertain between 1914 and 1950, see Online Data Appendix A.2).

To provide a more comprehensive understanding of the international economics of French colonies, we must also look at the financial account. The financial account reflects a nation's net change in ownership of international assets. A net increase in ownership of international assets counts as deficit since money flows out, while a net decrease in international

²¹ One exception is the military spending of United States in the three bases they held in Morocco between 1952 and 1960, visible in the balance of payments of Morocco. Annual expenditure was around one percent of local GDP at the time.

assets means that foreigners buy national assets more than residents buy foreign assets, so money flows in, creating a surplus. Thus, foreign direct investment in the country, purchases of national shares and bonds by foreigners, disbursements of loans granted by foreigners, and sales of foreign currency by the central bank all count as surpluses. Symmetrically, capital investments abroad, purchases of foreign shares and bonds by locals, disbursements of loans granted to foreigners, or purchases of foreign currency by the central bank all count as deficits. Our data provides evidence on two categories of asset transactions between the colonies and Metropolitan France: French loan disbursements to colonial budgets, entering as a surplus (Column F), and private securities called at the Paris stock exchange, also entering as a surplus (Column G). The financial account is not complete since there were loan disbursements to private colonial companies and direct private investment in the colonies, not transiting by the Paris stock exchange. Columns F and G should thus provide a lower bound of the inflows of private money in the colonies. Finally, we do not observe the flows of currencies operated by central banks to counteract those originated from the market. For the period 1952-1962, Banque de France data suggest that these flows of currencies were limited (Online Appendix C). All these unobserved transfers are grouped in Column H with previous unobserved payments of the current account described above.

We find that the observed inflows of money from the financial accounts (F+G), though partial, were not negligible, representing a surplus of 2.3% of colonies' GDP over the colonial period. Debt disbursements represented 1.4% of the empire's GDP, but two territories stood out: Tunisia received much more than the rest of the empire (3% of its GDP), while Indochina received much less (0.6% of its GDP). Private investments registered at the Paris stock exchange were more homogeneously distributed between colonies, representing almost 1% of GDP for most colonies, although less in West Africa (0.6% of its GDP) and more in Equatorial Africa (1.7% of its GDP).

The sum of all transactions recorded in the balance of payments is zero by definition, therefore it is easy to compute all unobserved payments by taking the opposite of the sum of all observed payments. This is what we do in Column H. These unobserved payments include mostly (1) on the deficit side, dividends to French owners of colonial firms, remittances from French expatriates to their families, and outflows from the reserve account, and (2) on the surplus side, private loans to colonial companies, private investments not registered at the Paris stock exchange, and inflows into the reserve account. For all colonies, the sum of unobserved payments is negative, meaning that unobserved outflows are more important than unobserved inflows. The colony in which the unobserved deficit is the largest is Indochina (6.8% of GDP),

followed by Equatorial Africa (5.8%), and Algeria (6.1% of GDP). Tunisia and Morocco display the smallest figures, of, respectively, 1.3% and 1.4%.

If we assume that inflows into the reserve account were small and that the bulk of private capital inflows to the colonies were going through the Paris stock exchange, we can interpret these unobserved payments as the sum of private monetary flows out of the colony in the form of dividends to French owners of capital and of remittances to the relatives of French expatriates and settlers. The wages paid to French colonizers living in the colonies were disproportionately high (Huillery, 2014; Cogneau et al., 2021), and likely not spent entirely in the colonies given low prices and lack of consumption and investment opportunities relative to France. In Figure 6, we plot the decade by decade evolution of unobserved payments in each colony. A few things are remarkable. In Equatorial Africa, the deficit is large from the 1890s to the 1930s during the brutal regime of concessionary companies (Coquery-Vidrovitch 1972), peaking at 20% of GDP in the 1910s. The deficit is also large in Madagascar in the early colonial period and in Indochina in the 20th century. Unobserved payments are only positive in Algeria before the 1870s and in the 1920s, and in Tunisia in the 1920s and 1930s. In all colonies, unobserved payments turn negative after 1945 and in the years preceding independence. In Algeria, they represented a deficit of more than 30% of GDP in the 1960s, which very likely correspond to capital repatriation by French settlers. Figure 7 shows similar estimates of private outflows, calculated by Banque de France between 1952 and 1966 (see also Online Appendix C). These figures confirm that outflows boomed everywhere in the years preceding independence, and some cases, like AEF and Cameroon, remained high afterwards. The work of Vanessa Ogle (2020) suggests that this money did not only flow to the Metropole, but potentially also to tax havens like Switzerland.

Though we need to be very cautious in the interpretation of these residual payments, it is likely that in certain colonies and certain time periods, large amounts of private money were flowing out of the colonies. On average, unobserved private payments represented a flow of 4.5% of GDP out of the colonies. If we break down balance of payments by sub-period (Online Appendix Table B2), we find that inflows dominated outflows only between 1833 and 1869 (i.e. mainly from France to Algeria), but that outflows surpassed inflows between 1870 and 1919 (4.3%), 1920 and 1939 (2.8%) and even more between 1946 and 1962 (6.9%). If we alternatively use the French official customs figures for the balance of trade, we get a lower but still large 3.4% figure for the whole 1833-1962 period (Online Appendix Table C1).

What if we wish to compare our estimates with Maddison's on India and Indonesia (Maddison 1989)? Maddison based his conclusions on the balance of trade, as in those two

cases military expenditure was mainly financed locally. Between 1868 and 1938, he found that the export surplus ranged between 0.9 and 1.7% of net domestic product (NDP) in the case of British India. These figures are comparable to ours for the whole French Empire, if we consider just the balance of trade corrected by military expenditure spent locally; and even if we restrict to the period before WWII (See Online Appendix Table B2)²². Given the relative population size of British India (more than six times the population of UK in 1925), he found that the export surplus could range between 0.5 and 1.1% of British NDP. As the population of the French Empire never reached more than twice the population of France (see Online Appendix Figure B1), the same figures never represented more than 0.2% of French GDP before WWII, and 0.3% between 1946 and 1962. France had a smaller empire, and the same colonial drain relative to the empire's income meant less relative to France's income. Maddison's figures for Indonesia and Netherlands are much higher. Again between 1868 and 1938, the export surplus ranged between 7.4 and 10.6% of Indonesia NDP. These figures are more comparable, although still higher, to the ones for French Indochina 1884-1954 (5.9% if we take the trade balance corrected by military expenditure). However, Indonesia also had a very large population and the Netherlands were smaller than France, so that the Indonesian surplus was also quite significant in terms of Dutch GDP: 5.5% to 8.0%, whereas the corresponding figure for Indochina was much lower compared to French GDP.

Conclusion

In this paper, we estimate as precisely as possible the monetary flows between France and its colonial Empire, between 1830 (conquest of Algiers) and 1962 (independence of Algeria). At its apex, the surface area of the French Empire was twenty times the area of France, its population twice the one of France, and its GDP about one-fifth. The previous historiography (Marseille 1984) told a story whereby the French Empire received generous public and private transfers from the Metropole. This story was at odds with the capital drain story told early enough for British India by Naoroji (1901) and confirmed, both for British India and Dutch Indonesia, by Maddison (1989).

Drawing from an extensive data collection effort in the French administrative archives, we provide a precise estimate of the total amount of net transfers of public money between the French state and the colonies. We show that the Empire cost on average a little more than 1%

²² Having NDP rather than GDP as a denominator does not change these conclusions. In 1955 Algeria or Morocco, depreciation of capital was estimated at 6-7% of GDP.

of French GDP annually, and that four fifths of this amount consisted in military expenditure. We also show that the cost of the colonial empire was unequally distributed across time and space. Before 1945, this cost never exceeded 0.5% of French GDP, and it only boomed to 2.5% when, after WWII, independence movements had to be counteracted by spending more in development and, above all, by fighting bloody wars in Indochina and Algeria. Overall, outside of independence wars, the French Empire was cheap to the French taxpayer, and the most expensive colony was the one with the highest number of French settlers, i.e. Algeria, whereas Indochina cost almost nothing. Colonial transfers were very much below what is considered today as an acceptable development aid target.

Turning to private money flows, we show that the trade balance deficits of French colonies have to be corrected by considering the military expenditure inflows, if we want to make them comparable with other colonies like British India, where military expenditure was financed by local revenue. Once this correction is made, French colonies are no longer exceptions. By estimating as many posts as possible in the balance of payments between colonies and the rest of the world, we show that significant amounts of money flowed from colonies to other countries, and in particular France. In that respect, the French Empire looks no different to British India, Dutch Indonesia, or even the Portuguese Empire in Africa.

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Figure 1 — Colonial Territories Present in our Data

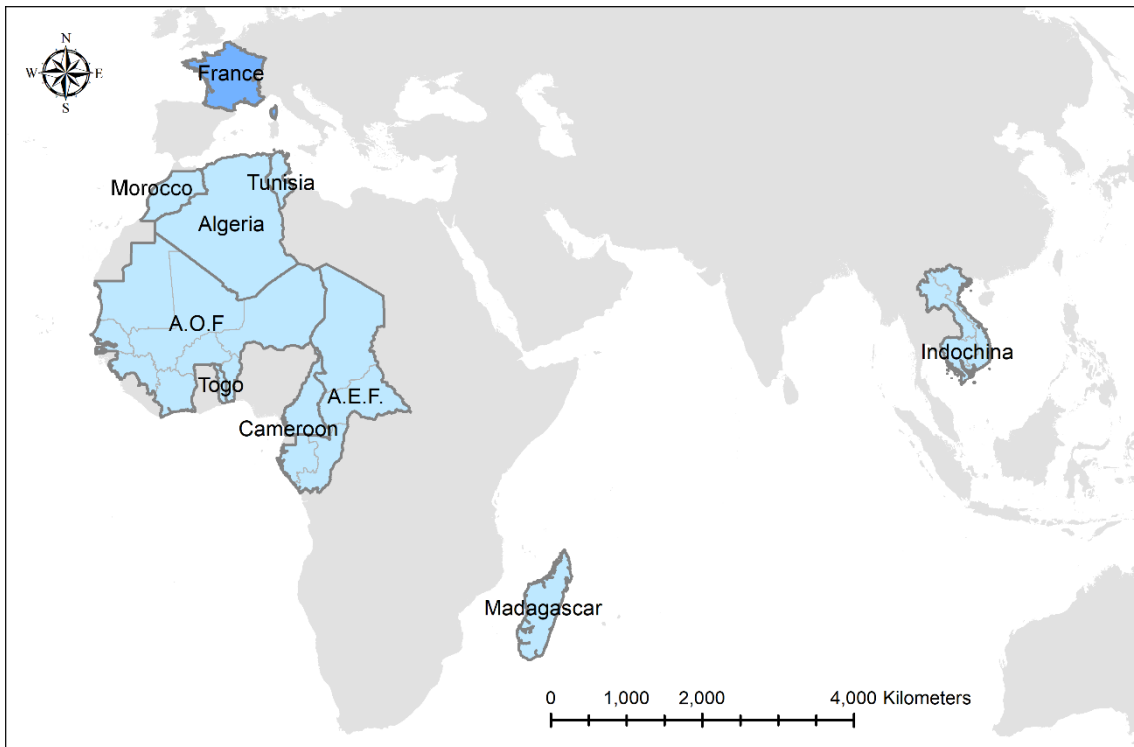
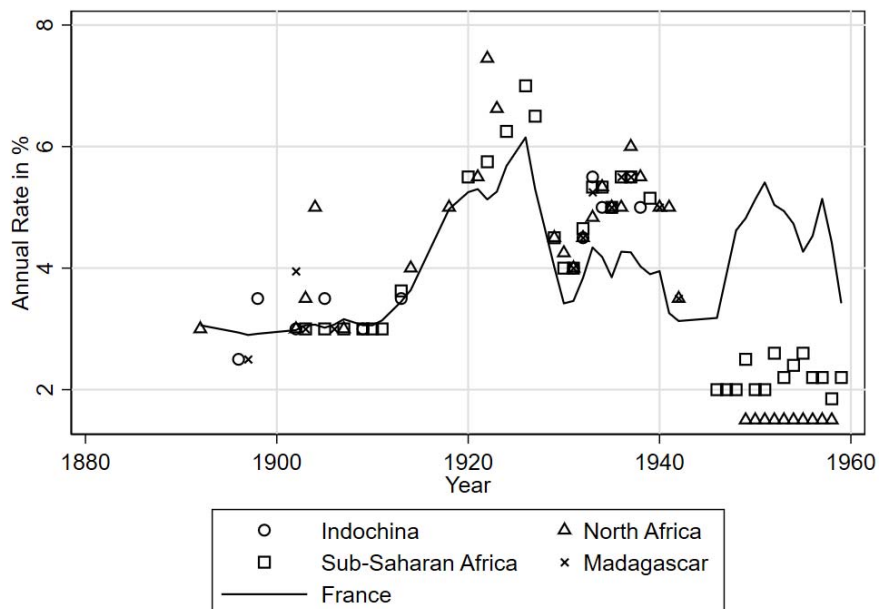
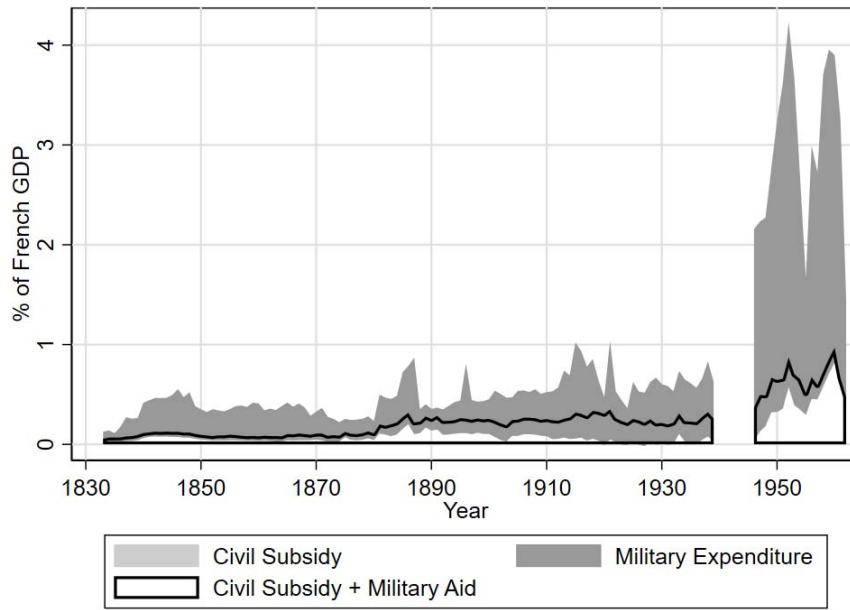


Figure 2 — Interest Rates on Loans Contracted by Colonial Governments vs. the French Government



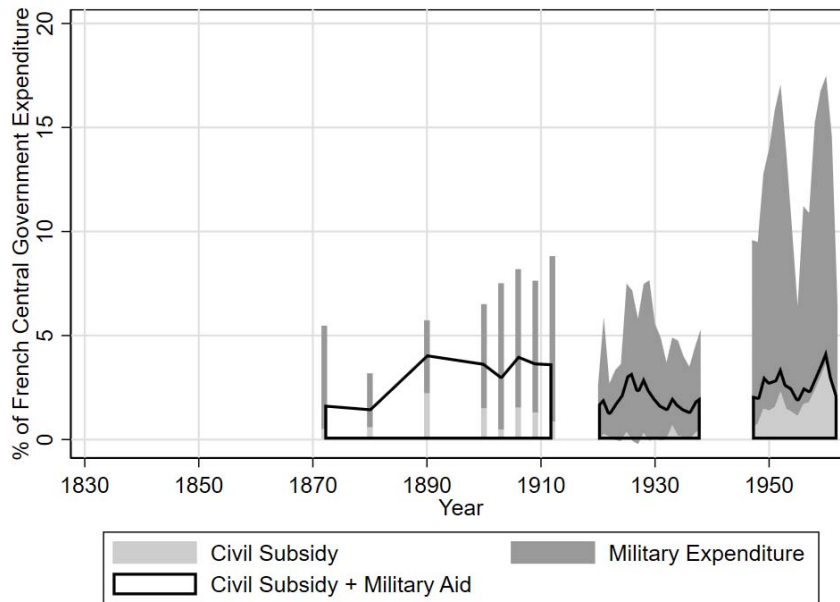
Notes: When there are several loans taken out per region/year, we take the simple average. Before 1945, colonial governments sell bonds on the Paris Stock Exchange. After 1945, colonial governments borrow directly from the French government. The interest rate on loans contracted by the French government is the “*taux de la rente perpétuelle*”.

Figure 3 — French Public Expenditure for the Colonial Empire, in Percent of French GDP



Notes: Central administration expenditure is too small to be meaningfully represented on the graph. Its addition would barely change the picture for total expenditure. The Civil Subsidy is equal to Development Aid, except in the end of the period, when one must add the outstanding capital at independence. Military aid is estimated at 1.6% of each colony’s GDP — this corresponds roughly to the share of GDP spent on military expenditure in the corresponding postcolonial independent states.

Figure 4 — French Public Expenditure in the Colonies, in Percent of French Central Government Expenditure



Notes: Central administration expenditure is too small to be meaningfully represented on the graph. Its addition would barely change the picture for total expenditure. The Civil Subsidy is equal to Development Aid, except in the end of the period, when one must add the outstanding capital at independence. Military aid is estimated at 1.6% of each colony’s GDP — this corresponds roughly to the share of GDP spent on military expenditure in the corresponding postcolonial independent states. Source for total French public expenditure: André and Delorme (1983). Total French central government expenditure is net of debt repayment.

Figure 5 — Net Civil Subsidies from France as a Share of Colonies' GDP

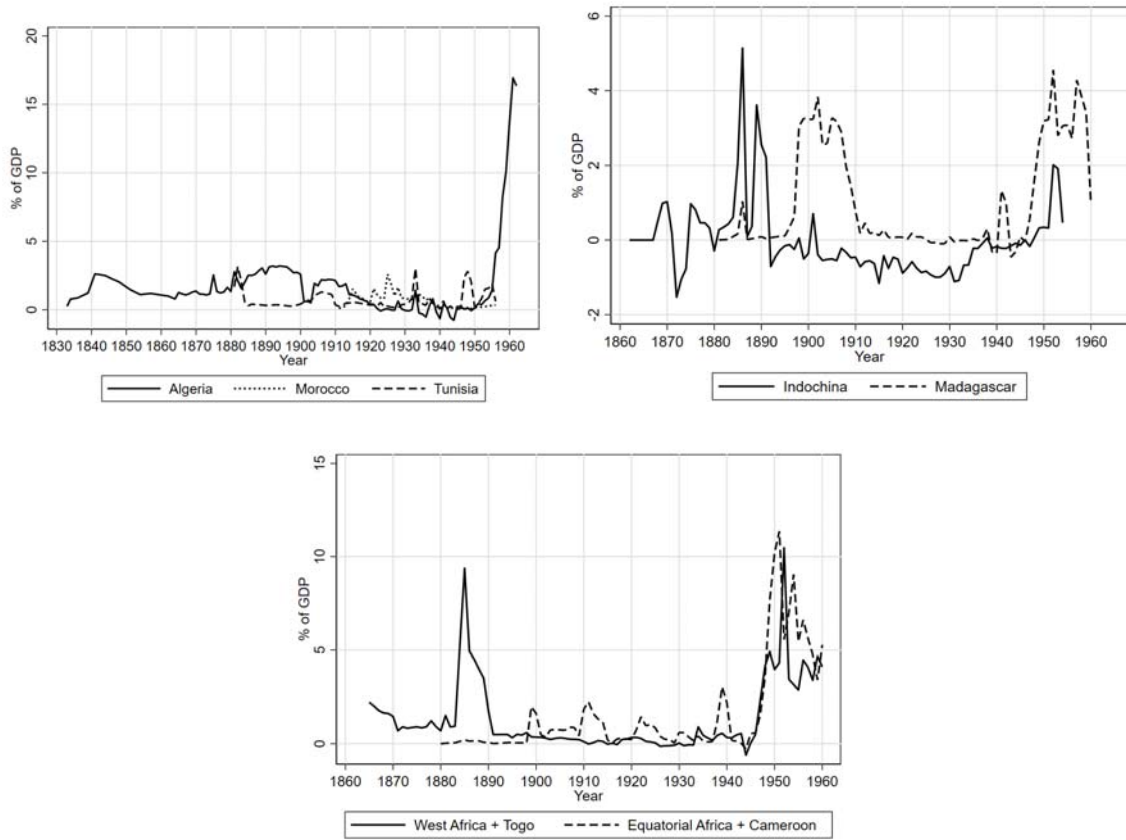
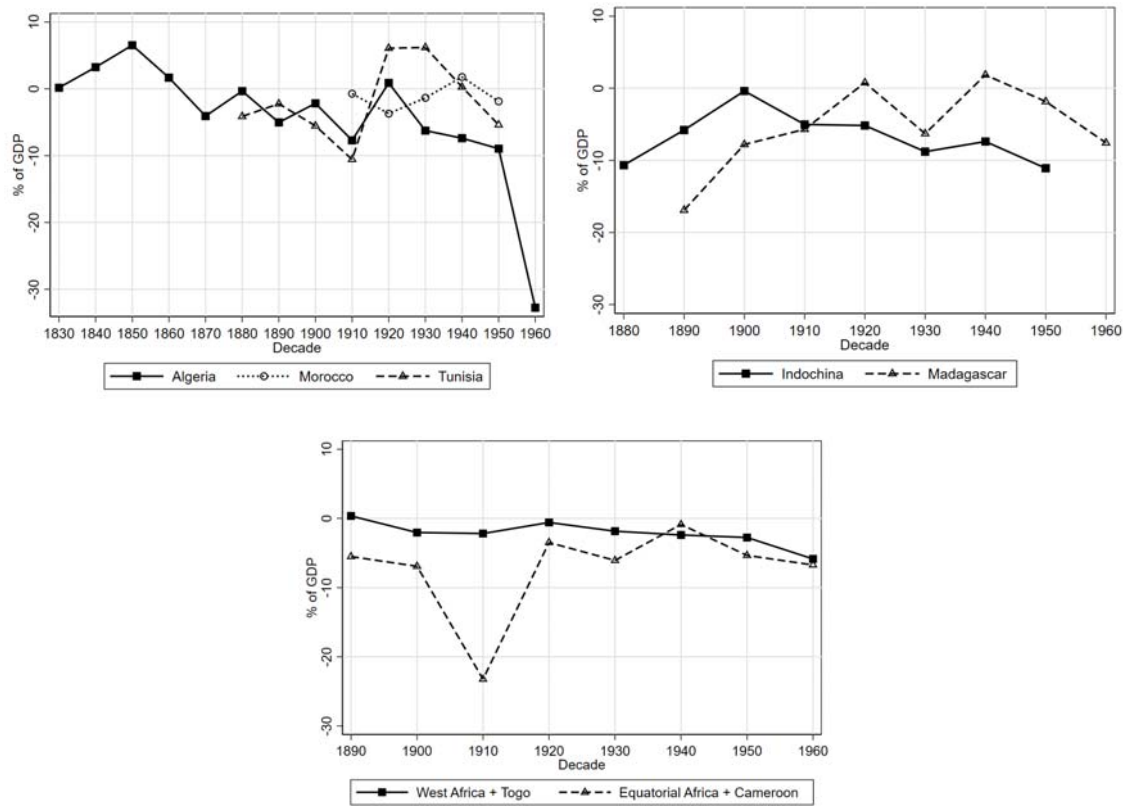


Figure 6 — Evolution of Unobserved Payments in the Balance of Payments over the Colonial Period



Notes: The figures report the decadal averages of unobserved payments in each colony or colonial federation over time (column H of Table 2). Negative numbers correspond to net payments flowing from colonies to France.

Figure 7 – Balance of payment outflows around independence



Source: Rapports du comité monétaire de la zone franc, 1956-1966. **Notes:** Net ‘invisible’ private operations between each country (colony) and the franc zone, in percent of country’s GDP. Algeria: for the years 1961 and 1962, outflows reach respectively 39 and 77 percent of GDP. The net outflow is computed by the Bank of France as the trade balance minus net public transfers, i.e. something equivalent to A+B+C+D+F in Table 2. Net foreign currency operations (current and in capital) are also discarded (it is always small amounts).

Table 1 — French Public Expenditure in the Colonies, in Percent of French GDP

| (% of French GDP) | (1) | (2) | (2) | (3) | (4) | (5) | (6) | (7) |
|---------------------------|---|---|------------------------------|-----------------------|--|---------------------------|----------------------|---------------------|
| | Total Public Expenditure =A+B+C+D | Central Administration Expenditure A | Military Expenditure B | Civil Subsidy C | Outstanding Capital at Independence D | Development Aid C+D | Military Aid E | Total Aid =C+D+E |
| Empire | 1.31 | 0.02 | 1.08 | 0.17 | 0.04 | 0.21 | 0.17 | 0.38 |
| North Africa | 0.85 | | 0.70 | 0.11 | 0.03 | 0.14 | 0.09 | 0.24 |
| Algeria | 0.66 | | 0.55 | 0.09 | 0.01 | 0.11 | 0.06 | 0.17 |
| Tunisia | 0.05 | | 0.04 | 0.01 | 0.01 | 0.02 | 0.01 | 0.03 |
| Morocco | 0.13 | | 0.11 | 0.01 | 0.01 | 0.02 | 0.02 | 0.04 |
| Indochina | 0.28 | | 0.28 | -0.00 | 0.00 | 0.00 | 0.04 | 0.03 |
| Madagascar | 0.04 | | 0.03 | 0.01 | 0.00 | 0.01 | 0.01 | 0.02 |
| Sub-Saharan Africa | 0.13 | | 0.07 | 0.06 | 0.00 | 0.06 | 0.03 | 0.09 |
| West Africa + Togo | 0.09 | | 0.05 | 0.04 | 0.00 | 0.04 | 0.03 | 0.07 |
| Eq. Africa + Cameroon | 0.04 | | 0.02 | 0.02 | 0.00 | 0.02 | 0.00 | 0.03 |
| Empire 1833-1869 | 0.36 | 0.00 | 0.32 | 0.04 | 0.00 | 0.04 | 0.05 | 0.10 |
| Empire 1870-1919 | 0.52 | 0.01 | 0.43 | 0.08 | 0.00 | 0.08 | 0.15 | 0.23 |
| Empire 1920-1939 | 0.62 | 0.01 | 0.59 | 0.02 | 0.00 | 0.02 | 0.23 | 0.25 |
| Empire 1946-1962 | 3.18 | 0.05 | 2.55 | 0.45 | 0.13 | 0.58 | 0.21 | 0.79 |

Notes: This table reports French public expenditure in the colonies, expressed in percentage of French GDP. Years 1940-1945 are ignored. Expenditure in the colonies in columns 1, 2, and 3 is calculated by the authors from the budgets of the Ministry of Defense (1833-1955), of the Ministry of Colonies (1833-1959), of the colonies and federation of Equatorial Africa (1899-1960), of the colonies and federation of West Africa (1865-1960), of Algeria (1833-1959), Morocco (1912-1956), Tunisia (1891-1955), Cameroon (1922-1960), Indochina (1867-1954), and Madagascar (1898-1960). The Military Subsidy in column 4 is estimated at 1.6% of each colony's GDP — this corresponds roughly to the share of GDP spent on military expenditure in the corresponding postcolonial independent states. Outstanding Capital at Independence (column 5) is estimated by the authors using documents from the section "Colonial Loans" of the archive funds "Treasury" at the Center for Economic and Financial Archives (CAEF).

Table 2 — Partial Balance of Payments of French Colonies, in Percentage of Colonies' GDP

| | | Current Account | | | | | Financial Account | | Unobserved payments in the current or financial accounts |
|-----------|---------------------------|---|------------------------|---|--|---------------------------------|-------------------|---------------------------|--|
| | | Balance of Trade | Income account | | | Partial current account balance | | | |
| | | Exports to the rest of the world – imports from the rest of the world | French civil subsidies | French military expenses spent <i>locally</i> in the colonies | Public loan repayments (interests + capital) | | | Public loan disbursements | Securities called at Paris stock exchange |
| | | A | B | C | D | E | F | G | H = -(A + B + C + D + F + G) |
| 1833-1962 | Empire | -5.1 | 1.5 | 6.7 | -0.8 | 2.3 | 1.4 | 0.9 | -4.5 |
| | North Africa | -7.4 | 1.8 | 8.2 | -1.0 | 1.6 | 1.9 | 0.9 | -4.4 |
| 1833-1962 | Algeria | -7.3 | 2.5 | 9.4 | -0.7 | 3.8 | 1.6 | 0.8 | -6.1 |
| 1881-1956 | Tunisia | -6.1 | 0.7 | 4.3 | -1.5 | -2.6 | 3.0 | 0.9 | -1.3 |
| 1912-1956 | Morocco | -8.3 | 0.5 | 7.3 | -1.3 | -1.7 | 1.9 | 1.2 | -1.4 |
| 1884-1954 | Indochina | -1.2 | -0.1 | 7.1 | -0.5 | 5.4 | 0.6 | 0.8 | -6.8 |
| 1896-1960 | Madagascar | -4.5 | 1.9 | 4.5 | -0.6 | 1.3 | 1.2 | 0.7 | -3.3 |
| | Sub-Saharan Africa | -3.3 | 2.5 | 2.6 | -0.6 | 1.2 | 1.0 | 0.9 | -3.1 |
| 1896-1960 | West Africa + Togo | -3.1 | 2.0 | 2.4 | -0.5 | 0.7 | 0.8 | 0.6 | -2.2 |
| 1896-1960 | Eq. Africa + Cameroon | -3.8 | 4.1 | 3.2 | -0.9 | 2.6 | 1.5 | 1.7 | -5.8 |

Notes: This table reports components of the colonies' balance of payments. The period 1940-1945 is excluded. Positive quantities are receipts to the colony. Negative quantities are payments from the colony. Amounts are expressed in percentages of colonies' GDP (Cogneau et al. 2021). Aggregated figures for the empire, North Africa, and Sub-Saharan Africa are simple averages of the BoP element of each colony, without consolidation. The balance of trade (column A) comes from the CEPII TRADHIST data and from *Annuaire Statistique de la France*. French civil subsidies, French military expenses, public loan repayments, and public loan disbursements (columns B, C, D and F) are calculated by the authors from colonial budgets and the budgets of the French Ministry of the Colonies and Ministry of Defense. We assume that 90% of military expenditure is spent locally during peacetime, 75% during wartime, and 50% during the independence wars of Indochina and Algeria. Securities called at the Paris stock exchange (column G) are from share capital series of listed colonial firms, see text. Column H represents the unobserved transfers, equal to the opposite of all observed transfers, to make the balance of payments equal to zero.

Online Appendices

Appendix A: Data Appendix

A.1. Central Administration Expenditure

We collected Central Administration Expenditure in the budget accounts of the Ministry of Colonies (in early times called the Ministry of the Navy and Colonies). The precise titles and localization of the sources are given in Cogneau, Dupraz and Mesplé-Somps (2021, Online Data Appendix, p. 47).

We collected the central administrative expenditure of the FIDES in IEDES (1964).

A.2. Military expenditure

The bulk of military expenditure did not transit through colonial budgets. We collected it directly in the budgets of the French government, more specifically the budgets of the Ministry of War (or Defense) and the Ministry of Colonies (or Navy and Colonies). With only a few exceptions in the early period of conquest, the Ministry of War dealt with North Africa, while the Ministry of Colonies dealt with the rest of the empire. The precise titles and localization of the sources are given in Cogneau, Dupraz and Mesplé-Somps (2021, Online Data Appendix p. 47).

From 1894 on, the Ministry of Colonies was separated from the Ministry of Navy. The latter was merged with the Ministry of War in 1947. For naval expenditure, we only recorded the ones that were specifically directed to colonies, most often spent in the ports of Algiers (Algeria) or Bizerte (Tunisia). Then, after 1911, due to their bad conservation state, we could not access the budget accounts of the Ministry of Navy, and in particular their colonial section. This means our aggregate military expenditure figures do not account for naval military expenditure specific to colonies after this date. Yet, this only represents a very tiny fraction. For instance, military expenditure in colonies only decreases by 2% between 1909 and 1911, as naval expenditure is no longer recorded. Furthermore, we felt it was impossible to attribute a fraction of general naval expenditure to colonies, even if part of the French Navy could be patrolling along the coasts of the empire. Note that the French Navy was only ranking fourth in

the world, below the British, US and German, and the two latter powers had a much smaller colonial empire.¹

We collected French ministerial budget accounts every year from 1870 onwards, before 1870 every three years for the Ministry of War, and every ten years for the Ministry of Colonies.² When military expenditure was not attributed to a specific colony—either because they concerned central military administration, or because the budget did not provide the geographical distribution—we allocated them to individual colonies in proportion to their share in geographically allocated military expenditure for the nearest known year.³ The general conclusion is that the breakdown between Algeria and Tunisia is quite uncertain between 1915 and 1950, and also the breakdown among Sub-Saharan African colonies after 1932. In some cases, military expenditure can be observed in both colonial budget accounts and the budget accounts of the Ministry of War.⁴ We favored the data of the Ministry of War, even though it was collected every three years only and interpolated in interim years, because they give a more detailed classification of military expenditure.⁵ This more detailed classification allowed us to reclassify military expenditure in infrastructure and health as civil subsidies to the colonies, because roads or bridges and even military hospitals could be used by civilians.

For the early period before WWI, we complemented the budget data from the Ministries of War, Navy or Colonies with additional data from Bobrie (1976) on the extraordinary budgets opened for colonial expeditions from 1860 to 1913, and from the Ministry of Foreign Affairs.⁶

We kept the WWII gap missing as we did not succeed in reconstructing colonial military expenditure during this period because data of Ministry of War are missing from 1940 to 1945 and military expenditure of the Ministry of the Colonies are missing in 1940 and 1941.

After WWII, except in 1946, the budgets of the Ministry of War no longer provide a breakdown by colony in North Africa. We therefore used alternative source to estimate military

¹ As of 1910, the total expenditure of the Ministry of Navy was 330 million, three times more than the total expenditure of the Ministry of Colonies. For 1850-1913, Bobrie (1976, p. 1235) estimates that naval expenditure in colonies never represented more than 5% of Ministry of Navy expenditure.

² Budget accounts were also missing for a handful of years after 1870. We used linear interpolation (in real terms) to complete missing observations. See the Data appendix of Cogneau et al. (2021) for more details on the methodology.

³ For the Ministry of War, military expenditure in Algeria and Tunisia are not distinguished after 1914 (the 1914 allocation is used afterwards), Morocco is not distinguished from Algeria and Tunisia in 1938, 1939 and 1946 (1937 is used in those cases). For the Ministry of Colonies, after 1932 onward, the geographical distribution of military expenditure is seldom reported. For 1932 to 1939, the 1931 distribution is used.

⁴ Algeria between 1830 and 1900, the Southern Territories of Algeria between 1904 and 1937, and Morocco between 1912 and 1937.

⁵ We checked that, in the aggregate, the interpolated years fit closely the data from colonial budgets.

⁶ Cochinchina 1860-1868, Tunisia 1881-1883, Tonkin 1886-1887, Madagascar 1896 and Morocco 1905-1913.

expenditure, in particular the cost of the independence wars in Indochina (1947-1954) and in Algeria (1955-1962).

Between 1946 and 1955, military expenditure for Indochina is very precisely estimated by Tertrais (2002); US military aid can be discounted. Given Indochina and outside of North Africa, the total amount of military expenditure is known from the Ministry of Colonies source, but not its geographical allocation. For 1950 and 1951, military expenditure in AOF was found and the remainder was allocated among the rest of colonies (AEF, Madagascar and others) using again the 1931 geographical distribution. For Sub-Saharan Africa, the resulting geographical distribution of 1950 was then used for 1947-1949, and the one of 1951 for 1952-1960.

For North Africa, Ministry of War data are missing from 1947 onwards. In the cases of Morocco and Tunisia, we use data on military expenditure available in their balances of payments. For Morocco in 1951, the balance of payment figure from Amin (1966, p. 326) mixes expenditure for French military bases and for US military bases. Between 1952 and 1956, the balances of payments distinguish French current transfers from foreign ones (US bases but also all consular expenditure from foreign countries); yet, they do not isolate military expenditure. Civil grants being extremely limited in the case of Morocco at the time, we consider that 90% of these transfers financed military expenditure. We also assume that amounts spent locally make 90% of total French military expenditure, i.e. that the fraction spent in France was 10% (see also the subsection Sources of Data and Construction of Different Items of the Balance of Payments of the paper). For 1951, we estimate French military expenditure using the share of 1952. Military expenditure in real terms is then interpolated backward between 1946 and 1951. For Tunisia, a balance of payments figure is used to estimate military expenditure in 1953 (Amin, 1966, p. 238). This figure only captures military expenditure spent locally. We considered it represented 90% of total military expenditure, like for Morocco. Expenditure is then interpolated between 1946 and 1953. It is assumed to increase in real terms between 1953 and 1956, at the same rate as in Morocco, as war in Algeria has started at the doors.

Finally, we use a variety of sources to estimate military expenditure in Algeria after 1946 and during the independence war. The war starts in November 1954, with unanticipated attacks against symbols of colonial powers and French settlers. Military expenditure for that year is estimated using the partial balance of payment of Algeria published by the French statistical institute.⁷ Between 1946 and 1954, military expenditure in Algeria is linearly interpolated. For 1957, Lefeuvre (2001) provides an estimate of total military expenditure. Conscript soldiers are

⁷ In this year, like for Tunisia and Morocco, we consider that current public expenditure inflows are made of military expenditure for 90%, and that total military expenditure is spent locally for 90%.

sent to Algeria starting in 1956, and the number of soldiers grows from 80,000 in 1954 to 420,000 in 1957, up to 500,000 between 1959 and 1961, then down to 200,000 in 1962 (Mahieu 2001). In 1954 and 1957, the calculated cost per soldier is similar, around 1.1 million francs; it is applied to the number of soldiers to estimate expenditure in 1955 and 1956. As war intensifies, the cost per soldier further increases to 1.4 million in 1958 (Lefeuvre 2001); this unit cost is applied to the number of soldiers to estimate war expenditure from 1958 to 1962. The estimated total war expenditure for 1957 and 1961 fits well with the figures from balance of payments reported by Amin (1966, p. 223), if we consider that half of it was spent locally, like during the Indochina war (Tertrais 2002). The estimated average for 1955-1959 is also very consistent with the estimates mentioned in one article of *Le Monde* newspaper of November 1st-2nd 1959 (whose sources are not mentioned). Furthermore, our estimate of total current public transfers for the war period (1954-1962), of which military expenditure makes 71%, fits perfectly well with the cumulated amount of public transfers in Banque de France balance of payments between France and Algeria (see Online Appendix C).

A.3. Net Grants

We collected data on grants in colonial budgets, considering the budgets of all public authorities receiving financial transfers from Metropolitan France: each colony (or federation), but also the auxiliary budget authorities that handled loans, health care, and posts and telegraphs.⁸ The precise titles and localization of these sources are given in Cogneau, Dupraz and Mesplé-Somps (2021, Online Data Appendix, p. 47-58). The colonies of West Africa, Central Africa, and Indochina were organized in federations, with a budget at the federal level (*budget général*) and budgets at the colonial level (*budget local*). All financial transfers between France and the colonies transited through the federal budgets, we therefore used colony-level budgets only before the creation of each federation, and after their dismantling.⁹ In general, civil grants from Metropolitan France to the colonies always transited through colonial budgets. Because these budgets are more detailed, we favored them over French ministerial budgets for

⁸ We did not collect the data from few specific budgets such as budgets dedicated to railways, because these budgets typically received resources from colonial and federal budgets that are already considered in our analysis. To the best of our knowledge, these budgets did not – or very exceptionally - receive subsidies directly from the French government so their omission should not affect our results.

⁹ We used linear interpolation to complete a few missing observations due to non-accessible budgets: Morocco's budget is missing in 1931; Tunisia in 1926, 1927, 1929, and 1930; Madagascar in 1924; Senegal (before AOF) in 1865-1874; Côte d'Ivoire (before AOF) in 1896; Cochinchina (South Vietnam, before Indochina) in 1868 and 1870; and Cambodia (before Indochina) in 1885-1887. In case of a missing observation for one year or more, we interpolated linearly between the two closest observed years: for instance, missing values in 1906 are inferred to be the mean of 1905 and 1907 values.

civil grants. However, we accounted for the rare cases where a French budget made civil expenditure directly in the colonies, without transitioning through colonial budgets: (a) The *Fond d'Investissement pour le Développement Economique et Social* (FIDES), created in 1946 to finance a large portion of public investment in the colonies, whose expenditure we found in a retrospective document published by IEDES (1964).¹⁰ (In the same period, there were also investment funds for North African colonies, such as the Constantine Plan in Algeria, but their expenditure transited through colonial budgets.) (b) The *Ministère du Sahara*, a ministry in charge of prospective research of oil and gas fields in the Algerian Sahara between 1958 and 1962, whose expenditure we count as a civil subsidy to Algeria.¹¹

A.4. Colonial Loans

We collected data on colonial loans in the archives of the French Ministry of Economy and Finance (*Service des Archives Economiques et Financières*) in Savigny-le-Temple.¹² Online Appendix Tables A1-A4 list all colonial loans by colony and provides, for each loan, the year of agreement, the amount agreed, the disbursement year and amount, the number of annuities, the nominal interest rate and, if any, the year of renegotiation, the new interest rate and the year of pre-payment. Thanks to this information, we calculate the pending principal of each colonial loan and consider it as repudiated debt, so as a forced subsidy of France to the colonies received at the year of independence.

¹⁰ The FIDES was financed mostly by contributions from France, but also by contributions from the colonies' budgets. We reconstituted the French subsidy by subtracting the colonies' contributions (recorded in colonial budgets) from total expenditure.

¹¹ A few other French ministries were involved in colonial expenditure. From 1865 to 1900, the Ministry of Public Works (*Ministère des Travaux Publics*) subsidized the construction of railway lines in Algeria, and other ministries made expenditure in Morocco and Tunisia (*Ministère des affaires marocaines et tunisiennes, 1955-1959*) and in Algeria (*Secrétariat d'Etat aux affaires algériennes, 1958-1963*). We checked that the corresponding amounts were exactly reported in the colonial budgets, on the *receiver* side, so we did not use these sources.

¹² This archive center includes an archive fund entitled "*Trésor*" (Treasury), which itself includes a section entitled "*Emprunts coloniaux*" (colonial loans). This section contains all sorts of documents related to colonial loans: administrative correspondence between colonial and French administrations, parliamentary debates, financial decrees and acts, official journals, administrative reports, etc.

Appendix Table A1 — Colonial loans in AOF and Togo

| Colony | Year of Loan Agreement | Amount Agreed (Millions FF) | Disbursement Year | Disbursement Amount (Millions FF) | Number of Annuities | Nominal Interest Rate | Year of Renegotiation (if any) | New Interest Rate after Renegotiation (if any) |
|--------|------------------------|-----------------------------|-------------------|-----------------------------------|---------------------|-----------------------|--------------------------------|--|
| AOF | 1903 | 65 | 1903 | 32.5 | 50 | 3 | | |
| | | | 1905 | 32.5 | 48 | 3 | | |
| | 1907 | 100 | 1907 | 40 | 50 | 3 | | |
| | | | 1909 | 30 | 48 | 3 | | |
| | | | 1910 | 30 | 47 | 3 | | |
| | 1910 | 14 | 1910 | 7 | 50 | 3 | | |
| | | | 1911 | 7 | 49 | 3 | | |
| | 1913 | 167 | 1913 | 25 | 60 | 3.5 | | |
| | | | 1920 | 25 | 50 | 5.5 | 1945 | 3.7 |
| | | | 1922 | 25 | 50 | 5.5 | 1945 | 3.7 |
| | | | 1924 | 50 | 50 | 6.5 | | |
| | 1931 | 1,690 | 1931 | 215 | 50 | 4 | 1957 | |
| | | | 1932 | 90 | 50 | 4.5 | 1957 | |
| | | | 1933 | 85 | 50 | 5 | 1957 | |
| | | | 1933 | 60 | 50 | 5.5 | 1957 | |
| | | | 1935 | 60 | 48 | 5 | 1957 | |
| | | | 1936 | 60 | 50 | 5.5 | 1957 | |
| | 1932 | 60 | 1932 | 60 | 38 | 5.7 | 1945 | 3.7 |
| | | | 1949 | 2,394 | 30 | 3 | | |
| | na | Na | 1946 | 616 | 64 | 2 | 1962 | 1 |
| | | | 1947 | 2,465 | 64 | 2 | 1962 | 1 |
| | | | 1948 | 1,170 | 64 | 2 | 1962 | 1 |
| | | | 1949 | 630 | 64 | 2 | 1962 | 1 |
| | | | 1950 | 5,173 | 64 | 2 | 1962 | 1 |
| | | | 1951 | 6,651 | 64 | 2 | 1962 | 1 |
| | | | 1952 | 9,160 | 64 | 2.2 | 1962 | 1 |
| | | | 1953 | 9,614 | 64 | 2.2 | 1962 | 1 |
| | | | 1954 | 1,651 | 64 | 2.2 | 1962 | 1 |
| | | | 1954 | 2,825 | 64 | 2.2 | 1962 | 1 |
| | | | 1956 | 4,400 | 64 | 2.2 | 1962 | 1 |
| | | | 1957 | 4,235 | 64 | 2.2 | 1962 | 1 |
| | | | 1958 | 2,640 | 64 | 1.5 | 1962 | 1 |
| 1959 | | | 5,549 | 64 | 2.2 | 1962 | 1 | |
| 1952 | | | 803 | 11 | 3 | | | |
| 1954 | | | 372 | 20 | 3 | | | |
| 1955 | | | 80 | 10 | 3 | | | |
| 1954 | | | 135 | 20 | 2.2 | | | |
| 1955 | 11 | 22 | 2.2 | | | | | |
| 1956 | 100 | 20 | 2.2 | | | | | |
| 1957 | 803 | 16 | 2.2 | | | | | |
| 1958 | 180 | 20 | 2.2 | | | | | |
| TOGO | 1931 | 73 | 1931 | 27 | 50 | 4 | | |
| | | | 1932 | 38.8 | 50 | 4.5 | | |
| | | | 1934 | 7.2 | 20 | 6 | 1944 | 4.5 |

Appendix Table A2 — Colonial loans in AEF, Cameroon, Madagascar, and Indochina

| Colony | Year of Loan Agreement | Amount Agreed (Millions FF) | Disbursement Year | Disbursement Amount (Millions FF) | Number of Annuities | Nominal Interest Rate | Year of Renegotiation (if any) | New Interest Rate after Renegotiation (if any) |
|------------|------------------------|-----------------------------|-------------------|-----------------------------------|---------------------|-----------------------|--------------------------------|--|
| AEF | 1909 | 21 | 1909 | 15 | 50 | 3 | | |
| | | | 1913 | 6 | > 40 | 3.75 | | |
| | 1914 | 171 | 1920 | 25 | > 25 | 5.5 | 1945 | 3.7 |
| | | | 1922 | 15 | 50 | 6 | | |
| | | | 1924 | 30 | 40 | 6 | | |
| | | | 1926 | 35 | < 15 | 7 | 1939 | 5.3 |
| | 1925 | 300 | 1927 | 30 | < 14 | 7 | 1939 | 5.3 |
| | | | 1927 | 70 | 48 | 6 | | |
| | 1931 | 822 | 1929 | 80 | 50 | 4.5 | | |
| | | | 1930 | 120 | 50 | 4 | | |
| | | | 1931 | 220 | 50 | 4 | | |
| | | | 1932 | 397 | 50 | 4.5 | | |
| | | | 1933 | 57 | 50 | 5 | | |
| | | | 1933 | 250 | 50 | 5.5 | | |
| | | | 1934 | 70 | 49 | 5 | | |
| 1939 | | 1936 | 50 | 50 | 5.5 | | | |
| | | 1937 | 35 | 20 | 5.5 | | | |
| | | 1939 | 22 | 30 | 5 | | | |
| | | 1939 | 68.3 | > 6 | 5.3 | 1945 | 3.7 | |
| | | 1931 | 10 | 50 | 4 | | | |
| CMR | 1931 | 32 | 1931 | 10 | 50 | 4 | | |
| | | | 1932 | 10.86 | 50 | 4.5 | | |
| | | | 1933 | 9.74 | 50 | 5.5 | | |
| 1934 | 25 | 13.5 | 48.5 | 5 | | | | |
| MADAGASCAR | 1897 | 30 | 1897 | 30 | 60 | 2.5 | | |
| | 1900 | 60 | 1902 | 14 | 60 | 3.95 | | |
| | | | 1903 | 46 | 59 | 3 | | |
| | 1905 | 15 | 1906 | 15 | 56.5 | 3 | | |
| | | | 1931 | 240 | 50 | 4 | | |
| | 1931 | 735 | 1932 | 60 | 50 | 4.5 | | |
| | | | 1933 | 60 | 50 | 5 | | |
| | | | 1933 | 84 | 50 | 5.5 | 1942 | 4 |
| | | | 1935 | 170 | 48 | 5 | | |
| | | | 1936 | 50 | 50 | 5.5 | 1942 | 4 |
| 1937 | | | 45 | 20 | 5.5 | 1942 | 4 | |
| 1940 | | | 26 | 30 | 5 | | | |
| 1942 | 500 | 166.67 | 42 | 3.5 | | | | |
| INDOCHINA | 1896 | 80 | 1896 | 80 | 60 | 2.5 | | |
| | 1898 | 200 | 1898 | 55 | 75 | 3.5 | | |
| | | | 1902 | 70 | 75 | 3 | | |
| | 1909 | 53 | 1905 | 75 | 75 | 3.5 | | |
| | | | 1909 | 53 | 75 | 3 | | |
| | 1912 | 90 | 1913 | 50 | 75 | 3.5 | | |
| | | | 1926 | 38 | ? | 8 | | |
| | | | 1928 | 2 | ? | 7 | | |
| | 1931 | 1,370 | 1931 | 200 | 50 | 4 | | |
| | | | 1931 | 300 | 50 | 4 | | |
| 1932 | | | 250 | 50 | 4.5 | | | |
| 1933 | | | 200 | 50 | 5.5 | | | |
| 1934 | | | 170 | 50 | 5 | | | |
| 1935 | | | 125 | 48 | 5 | | | |
| 1937 | | | 140 | 20 | 5.5 | | | |
| 1938 | 500 | 10 | 5 | 1944 | 4 | | | |
| 1932 | 250 | 250 | 50 | 4.5 | | | | |

Appendix Table A3 — Colonial loans in Algeria

| Colony | Year of Loan Agreement | Amount Agreed (Millions FF) | Disbursement Year | Disbursement Amount (Millions FF) | Number of Annuities | Nominal Interest Rate | Year of Renegotiation (if any) | New Interest Rate after Renegotiation (if any) | |
|---------|------------------------|-----------------------------|-------------------|-----------------------------------|---------------------|-----------------------|--------------------------------|--|--|
| ALGERIE | ? | ? | 1902 | 100 | 60 | 3 | | | |
| | ? | ? | 1908 | 200 | ? | ? | | | |
| | 1916 | 75 | ? | ? | ? | ? | | | |
| | 1920 | 330 | 1921 | 252 | ? | ? | | | |
| | | | | 1923 | 336 | ? | ? | | |
| | | | | 1929 | ? | ? | ? | | |
| | 1921 | 2,400 | 1930 | 630 | 40 | 4.5 | | | |
| | | | 1930 | 249 | 30 | 4 | | | |
| | | | 1931 | 701 | 30 | 4 | | | |
| | | | 1933 | 739 | 30 | 4.5 | | | |
| | 1930 | 53 | 1930 | 53 | 40 | 5 | | | |
| | | | 1931 | 27 | 30 | 4 | | | |
| | 1930 | 100 | 1933 | 4 | 30 | 4.5 | | | |
| | | | 1936 | 19 | ? | ? | | | |
| | | | 1938 | 25 | ? | ? | | | |
| | | | 1940 | 25 | ? | ? | | | |
| | 1932 | 30 | 1932 | 30 | ? | ? | | | |
| | | | 1933 | 731 | 30 | 5 | | | |
| | | | 1934 | 752 | 30 | 5 | | | |
| | 1932 | 3,300 | 1935 | 730 | 10 | 5 | | | |
| | | | 1935 | 533 | 20 | 5 | | | |
| | | | 1938 | 600 | 20 | 6 | | | |
| | | 1933 | 40 | | | | | | |
| | | 1934 | 80 | | | | | | |
| | | 1936 | 42 | | | | | | |
| | | 1937 | 258 | | | | | | |
| | | 1938 | 455 | | | | | | |
| | | 1939 | ? | | | | | | |
| | | 1940 | 250 | 1941 | 230 | 25 | 5 | | |
| | | 1942 | 1,800 | 1942 | 1,800 | 40 | 3.5 | | |
| | | | | 1944 | 1,500 | 37.5 | 3.5 | | |
| | | | | 1949 | 15,564 | 25 | 1.5 | | |
| | | | 1950 | 22,300 | 25 | 1.5 | | | |
| | | | 1951 | 19,799.7 | 25 | 1.5 | | | |
| | | | 1952 | 20,106 | 25 | 1.5 | | | |
| na | Na | 1953 | 22,733 | 25 | 1.5 | | | | |
| | | 1954 | 22,020 | 25 | 1.5 | | | | |
| | | 1955 | 37,000 | 25 | 1.5 | | | | |
| | | 1956 | 41,000 | 25 | 1.5 | | | | |
| | | 1957 | 43,800 | 25 | 1.5 | | | | |
| | | 1958 | 51,400 | 25 | 1.5 | | | | |

Appendix Table A4 — Colonial loans in the rest of North Africa

| Colony | Year of Loan Agreement | Amount Agreed (Millions FF) | Disbursement Year | Disbursement Amount (Millions FF) | Number of Annuities | Nominal Interest Rate | Year of Renegotiation (if any) | New Interest Rate after Renegotiation (if any) | |
|-------------------------------|------------------------|-----------------------------|-------------------|-----------------------------------|---------------------|-----------------------|--------------------------------|--|-----|
| MAROC | 1902 | 7.5 | 1902 | 7.5 | ? | 5 | | | |
| | 1903 | 7.5 | 1903 | 7.5 | ? | 5 | | | |
| | 1903 | 7.5 | 1903 | 7.5 | ? | 5 | | | |
| | 1904 | 62.5 | 1904 | 62.5 | 35 | 5 | | | |
| | 1910 | 101.124 | 1910 | 101.124 | 75 | 5 | | | |
| | 1914 | 242 | | 1914 | 70.8 | 75 | 4 | | |
| | | | | 1918 | 171.4 | 70 | 5 | | |
| | | | | 1922 | 150 | 40 | 7.45 | 01/12/1931 | 6.8 |
| | 1920 | 744 | | 1923 | 150 | 40 | 7.75 | 01/12/1931 | 7.1 |
| | | | | 1929 | 228 | 75 | 4.5 | | |
| | | | | 1934 | 143 | 30 | 6.35 | | |
| | | | | 1929 | 60 | 75 | 4.5 | | |
| | 1928 | 819 | | 1930 | 425 | 75 | 4 | | |
| | | | | 1931 | 391 | 75 | 4 | | |
| | | | | 1932 | 1,536 | 1932 | 1,000 | 65 | 4.5 |
| | 1933 | ? | | 1933 | 400 | 65 | 5 | | |
| | | | | 1934 | 350 | 65 | 5 | | |
| | | | | 1937 | 300 | 50 | 6 | | |
| | | | | 1949 | 10,250 | 25 | 1.5 | | |
| | | | | 1950 | 13,700 | 25 | 1.5 | | |
| | | | | 1951 | 13,665 | 25 | 1.5 | | |
| | | | | 1952 | 12,059 | 25 | 1.5 | | |
| | na | Na | | 1953 | 15,035 | 25 | 1.5 | | |
| 1954 | | | | 13,500 | 25 | 1.5 | | | |
| 1955 | | | | 21,300 | 25 | 1.5 | | | |
| 1956 | | | | 17,000 | 25 | 1.5 | | | |
| 1957 | | | | 3,265 | 25 | 1.5 | | | |
| TUNISIE | na | Na | 1892 | 198.193 | 95 | 3 | | | |
| | | | 1902 | 40 | 86 | 3 | | | |
| | | | 1903 | 3.125 | 64 | 3.5 | | | |
| | | | 1907 | 100 | 81 | 3 | | | |
| | | | 1931 | ? | 50 | 4 | | | |
| | | | 1932 | 189.297 | 30 | 4.5 | | | |
| | | | 1949 | 9,740 | 25 | 1.5 | | | |
| | | | 1950 | 8,407 | 25 | 1.5 | | | |
| | | | 1951 | 9,597 | 25 | 1.5 | | | |
| | | | 1952 | 9,123 | 25 | 1.5 | | | |
| | | | 1953 | 11,380 | 25 | 1.5 | | | |
| | | | 1954 | 10,169 | 25 | 1.5 | | | |
| | | | 1955 | 7,500 | 25 | 1.5 | | | |
| | | | 1956 | 3,075 | 25 | 1.5 | | | |
| 1957 | 6,100 | 25 | 1.5 | | | | | | |
| RAILWAYS MEDITERRANEE / NIGER | | | 1942 | 350 | 30 | 3.5 | | | |

A.5. Military Expenditure in the First Decades of Independence

To estimate military aid during colonization, we gathered data on the military expenditure of former French colonies in the first decade of independence. It is presented in Table A5. Between 1957 and 1973, independent countries formerly colonized by France spent 1.6% of their GDP on military expenditure. We estimate military aid during independence as the maximum of (1) total military spending for that colony and (2) 1.6% of the colony's GDP.

A.6. Prices, and French GDP and Central Government Expenditure

In the sources we use, monetary amounts are expressed in French francs (notably in French ministerial budgets accounts) or in the local colonial currency (in colonial budgets). Before World War II, colonial currencies were called “franc” and tied to the French franc at parity, except in Indochina, where the local currency from 1884 onward was the “piastre”, pegged to the French franc at varying rates.¹³ Just after WWII, a new currency was introduced in the colonies of Sub-Saharan Africa, the CFA franc, pegged to the franc at 1 CFA=1.7 francs, then 2 francs. We started by converting all monetary flows to French francs using official exchange rates. We then deflated the flows in 1937 French francs using a French GDP deflator obtained by chaining the INSEE deflator after 1949, Villa (1997) between 1900 and 1948, and Toutain (1987) before 1900.

French GDP is GDP at market prices from INSEE national accounts between 1949 and 2010, deflated using the GDP deflator.¹⁴ Between 1900 and 1949, we extrapolated backwards using the annual growth rates of market GDP estimated by Villa (1997), accounting for the gradual increase in the share of non-market GDP using estimates from Vincent (1972, p. 334) for 1913, 1929, and 1938. Between 1820 and 1900, we extrapolated backwards using annual growth rates estimated by Toutain (1987). Data on French total central government expenditure comes from André and Delorme (1983).

¹³ The official exchange rates for the *piastre* are found in Giacometti (1998). After WWII, the *piastre* was known to be overvalued, at 1 *piastre* = 17 francs. We could use an exchange rate closer to the black-market rate (10 francs), but this hardly matters, as the bulk of French expenditure in this period is military expenditure, which is found in French ministerial budgets and expressed in French francs.

¹⁴ This is the GDP of Metropolitan France only. It does not include Algeria or any other colony.

Appendix Table A5 — Military expenditure after independence, in percentage of GDP

| Year | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Algeria | | | | | | | 2.5 | 3.4 | 3.4 | 3.4 | 2.9 | 2.6 | 2.3 | 2.0 | 2.0 | 1.6 | 1.6 |
| Morocco | 1.7 | 1.9 | 2.2 | 2.0 | 2.4 | 2.3 | 2.8 | 2.5 | 2.1 | 2.4 | 2.3 | 2.8 | 2.3 | 2.2 | 2.6 | 2.8 | 3.0 |
| Tunisia | 1.0 | 1.4 | 2.2 | 2.2 | 2.2 | 1.8 | 1.6 | 1.8 | 1.3 | 1.3 | 1.4 | 1.4 | 1.3 | 1.6 | 1.5 | 1.4 | 1.4 |
| Benin | | | | 0.6 | 0.9 | 1.2 | 1.2 | 1.4 | 1.4 | 1.2 | 1.3 | 1.3 | 1.2 | 1.2 | 1.3 | 1.2 | 1.3 |
| Burkina Faso | | | | 0.4 | 0.5 | 1.3 | 1.3 | 1.3 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 |
| Cameroon | | | | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 1.8 | 1.7 | 1.7 | 1.7 |
| Central African Rep. | | | | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Chad | | | | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Congo, Republic of | | | | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 4.8 | 4.3 | 3.1 | 3.6 |
| Ivory Coast | | | | n.a. | n.a. | 1.4 | 1.1 | 1.2 | 1.4 | 1.3 | 1.4 | 1.2 | 1.2 | 1.2 | 1.5 | 1.7 | 1.1 |
| Gabon | | | | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 1.1 | 1.0 | 1.4 | 1.4 | 1.4 | 1.6 | 1.3 |
| Guinea | | | | n.a. | n.a. | n.a. | n.a. | n.a. | 2.8 | 3.3 | n.a. | 2.6 | 2.3 | 2.1 | 3.0 | 2.8 | 2.4 |
| Madagascar | | | | 0.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.1 | 1.1 | 1.2 | 1.2 |
| Mali | | | | n.a. | 1.5 | 1.5 | 1.3 | 1.4 | 1.2 | 1.0 | 1.8 | 1.5 | 1.7 | 1.7 | 1.5 | 1.7 | 1.9 |
| Mauritania | | | | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Niger | | | | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Senegal | | | | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Togo | | | | n.a. | 0.3 | 0.5 | 0.8 | 2.0 | 1.8 | 1.3 | 1.3 | 1.4 | 1.3 | 1.4 | 1.5 | 1.5 | 1.7 |
| Cambodia | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Laos | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Vietnam | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

Notes: This table reports military expenditure as a share of former colonies' GDP after independence up to 1973. n.a.: data not available. *Sources:* for military expenditure, SIPRI Military Expenditure Database, local currency calendar years (<https://www.sipri.org/databases/milex>); for GDP, World Development Indicator database and Cogneau et al. (2021).

A.7. Balances of Trade

The first source for the total exports and imports of colonies is the *Annuaire Statistique de la France* (French statistical abstract), reporting French official customs records. This is the source used by Marseille (1984). By cross-checking Marseille's data with Franc zone reports or the Statistical abstract for Morocco, we identified a few minor errors in Marseille's data for the years after 1955, which we corrected.¹⁵ A major mistake in Marseille (1984) is that these trade balances were treated as bilateral (colony-France) while they are actually multilateral (colony-rest of the world including France). In this paper, we also fix this mistake.

A second source is the TRADHIST database from Fouquin and Hugot (2016). It records bilateral trade flows between all countries in the world, using a large number of archival sources from many reporting countries, France of course but also many European countries, the United States and others. For each bilateral flow, importing country data is preferred when available, as importers collect duties hence have more incentives to properly assess trade flows. We sum up all bilateral trade flows from colonies and out of colonies.¹⁶

We then produce two estimates of the trade balance. To compute our first, preferred estimate, we first compute exports for each colony and each year as the maximum of (1) exports of that colony in the *Annuaire Statistique de la France* (ASF) and (2) the sum of all bilateral exports of that colony in the TRADHIST database. We do the same for imports. The average correction of the ASF exports by TRADHIST is 8.7% of the ASF amount. It is higher than 10% in 24.7% of colony-years. It is larger than 100% in 3 cases: 106% in AEF 1919, 151% in Morocco 1917, 171% in Tunisia 1919 (perhaps unsurprisingly around World War I). The average correction of the ASF imports by TRADHIST is only 2.6% of the ASF amount. It is higher than 10% in only 5.5% of colony-years. It never goes above 63% (for Morocco in 1912, at the very beginning of French rule). It makes sense that the correction by TRADHIST is larger in the case of exports than in the case of imports, as the French source is complemented by the import records of other industrialized countries. Finally, we compute the trade balance as the difference between exports and imports.

¹⁵ For instance, in the case of Algeria, the Sahara region has a specific trade balance from 1958 to 1962 (and a specific budget, see above). Other corrections are for Algeria 1955, Morocco 1951, 1954 and 1955-56, Cameroon 1957-58 and Madagascar 1955-1959; they are all very limited.

¹⁶ A few outliers are corrected, like for instance huge and incredible exports from Madagascar to Czechoslovakia in 1955, 1966 and 1957. Missing data for Togo (1922-1944 and 1949-1957), Cameroon (1922-1944), AOF and AEF (1949-1959), Indochina (1949-1954) are replaced by French official statistics.

Our second estimate of the trade balance uses only the exports and imports figures of the *Annuaire Statistique de la France*.

A.8. Private Investments in the Colonies

We used the Data for Financial History database on the Paris Stock Exchange and identified in it 516 companies which were operating in French colonies and were listed at some point between 1847 and 1962.¹⁷ Most of these data are based on the *Annuaire Desfossés* annual reports. For the post-WWII period, as the D-FIH database stopped in 1953, we manually included the largest firms that were found to be listed between 1953 and 1962. For each of these companies, we could establish a full record of their share capital across time, even in the years before they became listed. Most companies operate in one colony only, as separate subsidiaries are usually created in each territory.¹⁸ We treat the year-to-year increases in share capital as private capital inflows to colonies. Many firms had a Paris address, yet only a very minor part of the capital called would have been invested in France. However, other types of private capital inflows are missed, so that our estimate should represent a lower bound.

First, we miss capital called through bonds rather than shares. To our knowledge, it was mainly railway companies in Algeria and Tunisia that issued bonds, and mostly before 1914. As of 1914, according to Marseille (1984, p. 140), the cumulated stock of bonds reached 986 million francs, against our estimate of 1,341 million for shares. Of course, in contrast with shares, bonds were eventually reimbursed, hence generating a symmetric capital outflow. In particular, private railway companies were gradually nationalized until 1938 (creation of the national railway company, SNCF), and their capital was bought out by colonial budgets.

Second, we likely missed a few listed firms, and of course all non-listed ones. Another source allows us to quantify these downward biases: from 1910 onward, annual directories of colonial firms were published by the *Union coloniale* then renamed *Comité Central de la France d'Outre-Mer*, in order to advertise these firms to potential investors: the *Annuaire des entreprises coloniales*, later renamed *Annuaire des entreprises d'outre-mer*. We collected these directories for the years 1910, 1926, 1938, 1955 and 1960, and matched them with our sample of listed colonial firms. The share capital of firms is usually reported, yet, as firms' reports are voluntary, it is often not updated (and in some cases, the firm may have ceased to exist or been absorbed by another one). This makes that for firms present in the two sources,

¹⁷ <https://dfih.fr>. We thank Sebastián García Cornejo for his contribution to the construction of these data.

¹⁸ The share capital of firms operating both in Algeria and in another colony was allocated to Algeria.

total share capital is higher in the Stock Exchange source by around 30% until 1938, and much more after due to large inflation.

Only a few listed firms (before 1953) are found in the directories that we did not identify in the Stock Exchange source, so that we could miss not more than 10% of capital inflows through this channel, and most likely less. Many more listed firms are actually absent from the directories, this pointing out that firm's voluntary reporting was far from being systematic.

As for (presumably) non-listed firms, i.e. firms recorded in the directories but not found in the Stock Exchange source, many uncertainties apply. They represent 30% of our estimate of total share capital in 1910, 31% in 1926, and 37% in 1938. They represent much more in 1955 and 1960: 66% and 48% respectively. Although reported in colonial directories, some of the big missing firms may have located part of their activity in France or outside of colonies. Furthermore, some small or medium-size non-listed firms might have been created by settlers with their own savings or with capital raised on the spot, hence did not generate any balance of payment inflows from France. Nevertheless, we may miss a significant fraction, up to 50%, of capital inflows to firms that were created before 1962 in the colonies, yet were either listed after 1962 or never listed, in particular firms created after 1945.

However, the consequence of this uncertainty is quite limited for our estimates, and innocuous for our conclusions. Indeed, even if underestimation was as high as 50%, in Table 2 column G (for share capital called by colonial firms) would be 1.5% of colonial GDP instead of 0.9%, and column H (for private unobserved payments) would reach -5% rather than -4.5%.

Appendix B: Additional Tables and Figures

Appendix Table B1 — Partial Balance of Payments of French Colonies, in Percentage of Colonies' GDP: Alternative Balance of Trade Figures

| | | Current Account | | | | | Financial Account | | Unobserved payments in the current or financial accounts |
|-----------|---------------------------|---|------------------------|---|--|---------------------------------|-------------------|---------------------------|--|
| | | Balance of Trade | Income account | | | Partial current account balance | | | |
| | | Exports to the rest of the world – imports from the rest of the world | French civil subsidies | French military expenses spent <i>locally</i> in the colonies | Public loan repayments (interests + capital) | | | Public loan disbursements | Securities called at Paris stock exchange |
| | | A | B | C | D | E | F | G | H = -(A + B + C + D + F + G) |
| 1833-1962 | Empire | -6.2 | 1.5 | 6.7 | -0.8 | 1.2 | 1.4 | 0.9 | -3.4 |
| | North Africa | -9.2 | 1.8 | 8.2 | -1.0 | -0.2 | 1.9 | 0.9 | -2.6 |
| 1833-1962 | Algeria | -9.0 | 2.5 | 9.4 | -0.7 | 2.1 | 1.6 | 0.8 | -4.4 |
| 1881-1956 | Tunisia | -8.1 | 0.7 | 4.3 | -1.5 | -4.5 | 3.0 | 0.9 | 0.7 |
| 1912-1956 | Morocco | -10.2 | 0.5 | 7.3 | -1.3 | -3.7 | 1.9 | 1.2 | 0.6 |
| 1884-1954 | Indochina | -1.2 | -0.1 | 7.1 | -0.5 | 5.3 | 0.6 | 0.8 | -6.7 |
| 1896-1960 | Madagascar | -4.5 | 1.9 | 4.5 | -0.6 | 1.4 | 1.2 | 0.7 | -3.4 |
| | Sub-Saharan Africa | -3.8 | 2.5 | 2.6 | -0.6 | 0.7 | 1.0 | 0.9 | -2.6 |
| 1896-1960 | West Africa + Togo | -3.4 | 2.0 | 2.4 | -0.5 | 0.4 | 0.8 | 0.6 | -1.9 |
| 1896-1960 | Eq. Africa + Cameroon | -4.7 | 4.1 | 3.2 | -0.9 | 1.7 | 1.5 | 1.7 | -4.9 |

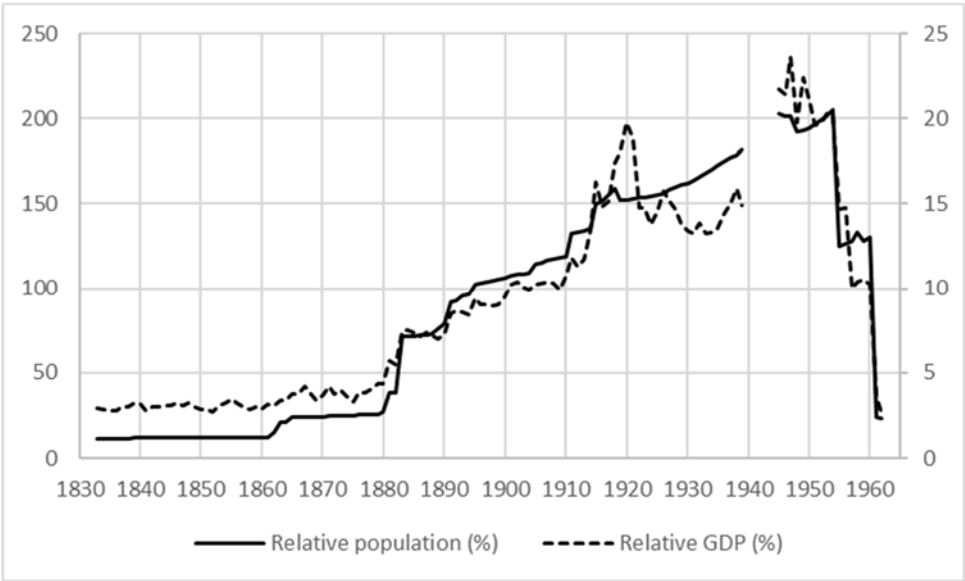
Notes: This table reproduces Table 2 in the paper, but the balance of trade (column A) uses only data from *Annuaire Statistique de la France*, and does not make any correction using CEPII TRADHIST data.

Appendix Table B2 — Cumulated Partial Balance of Payments of French Empire, in Percentage of Colonies' GDP, by sub-periods

| | | Current Account | | | | | Financial Account | | Unobserved payments in the current or financial accounts |
|-----------|---------------|---|------------------------|---|--|---------------------------------|---------------------------|---|--|
| | | Balance of Trade | Income account | | | Partial current account balance | | | |
| | | Exports to the rest of the world – imports from the rest of the world | French civil subsidies | French military expenses spent <i>locally</i> in the colonies | Public loan repayments (interests + capital) | | Public loan disbursements | Securities called at Paris stock exchange | |
| | | A | B | C | D | E | F | G | H = -(A + B + C + D + F + G) |
| 1833-1962 | Empire | -5.1 | 1.5 | 6.7 | -0.8 | 2.3 | 1.4 | 0.9 | -4.5 |
| 1833-1869 | Empire | -12.1 | 1.4 | 6.8 | -0.1 | -4.0 | 0.2 | 0.6 | 3.2 |
| 1870-1919 | Empire | -1.7 | 0.9 | 4.2 | -0.8 | 2.6 | 0.8 | 0.8 | -4.2 |
| 1920-1939 | Empire | -2.7 | 0.1 | 3.5 | -1.0 | -0.0 | 1.8 | 1.0 | -2.8 |
| 1946-1962 | Empire | -8.6 | 3.0 | 10.7 | -0.6 | 4.5 | 1.6 | 0.8 | -6.9 |

Notes: See Table 2 in the paper. Each individual colony enters the balance of payment after the starting date indicated in Table 2, and exits after its independence.

Appendix Figure B1 – French Empire Population and GDP compared to France



Source: Cogneau et al. (2021) estimates for population and GDP.
Notes: Left (resp. right) scale for population (resp. GDP). The geographical extension of the French empire varies across time. In 1954, before the independence of Indochina, its total population was around 2.05 times the population of France, and its total GDP only one-fifth (20%) the one of France.

Appendix C: Balance of Payments Estimates from Banque de France for 1952-1962

Starting in 1952, Banque de France produced partial balance of payments estimates for French colonies, quite similar to ours. These estimates are composed of two separate balance sheets of identifiable flows of payments: between each colony (including Indochina) and the (rest of the) franc zone on the one hand (the franc zone was a monetary union composed of Metropolitan France and its African colonies), between each colony and the rest of the world on the other hand.

With the rest of the world, other current payments beyond the trade balance are identified, as well as capital payments. The resulting balance corresponds to a change in reserves in foreign currencies. For all colonies, individual changes in reserves are pooled together and pooled with France. Individual changes in reserves are then compensated by a flow of payments of the opposite sign between France and each colony, as foreign currencies are purchased or sold in Paris.

With the franc zone, net public transfers between France and colonies are identified, as well as changes in assets in French francs for each bank of issue in the special account called “*compte de compensation des monnaies de la zone franc*” (i.e. for the banks of Algeria and Tunisia, of Morocco, of Indochina, and for the banks of Madagascar, of AOF and AEF for the CFA franc). The resulting balance corresponds to what the Banque de France calls “invisible” transfers. These transfers are composed of many elements: some freight charges, insurance premiums, tourism expenditure, stays in France of autochthonous students or of expatriate civil servants, remittances of migrant workers in France, interest payments on private debts, dividends from equities, repatriated profits; and, on top of these, capital inflows and outflows between France and its colonies. Given the negative sign and magnitude of these transfers, the Banque de France experts still acknowledge that they must capture large capital outflows, especially just before independence years.

Appendix Table C1 below makes a comparison between Banque de France estimates and our own estimates. We look at cumulated amounts over the 1952-1962 period, expressed in percent of GDP of each colony or group of colonies (and with colonies exiting the counts when they get independent). Column (A) reports trade balance estimates, that differ because the Banque de France only uses French official customs, whereas we also use other countries’ reports (see Online Data Appendix A.7 on trade balance data, and Online Appendix Table B1). The gap between the two can be significant, yet it never goes above 1.5% of GDP, except for

Tunisia (3.3%). Column (B) reports public transfers estimates: payments ordered by public treasuries on the Banque de France side, versus our estimates (French civil subsidies, French military expenditure expenses locally, public loans repayments and disbursements). The gaps are again limited in most colonies, excepting Tunisia. This is again reassuring for our estimates of military expenditure spent locally, which represent a large fraction of these public transfers, in particular for Algeria and Indochina. Other columns report Banque de France estimates for other current payments (C) and capital payments (D) with the rest of the world, for “invisible transfers” (E) and the changes in assets in foreign currencies and French francs. Last, column (G) just reports the residual obtained when withdrawing public transfers estimates (B) from the trade balance (A).

The Table shows that, at the level of the French Empire as a whole, the difference between Banque de France estimates and our own is limited. The residual (G) respectively reaches -9.1 and -8.2 percent of GDP, and in both cases indicates large outgoing payments from colonies to France. The two figures are also quite close in the case of Algeria, Morocco and Madagascar. They are more different for Tunisia, Indochina, AOF and AEF, yet, if anything, our own estimates are quite conservative, as they always understate outflows.

Finally, columns (C), (D) and (F) show clearly that (i) payments between the colonies and the rest of the world are very limited compared to flows between the colonies and France, and (ii) that changes in French francs assets held by colonial banks of issue are only a minor part of our computed residual.

Table C1 — Comparison between Banque de France estimates and our own, for 1952-1962

| | Trade balance (A) | French public transfers (B) | Net current payments RoW (C) | Net capital payments RoW (D) | "Invisibles" (E) | Var. of reserves (francs and others) (F) | Residual (G)=- (A)-(B) |
|---------------------------------|-------------------------|--------------------------------------|---------------------------------------|---------------------------------------|---------------------|--|---------------------------|
| Empire | | | | | | | |
| BdF estimates | | | | | | | |
| Franc zone | -9.2 | 19.1 | | | -8.8 | -1.1 | |
| Rest of World | -0.8 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 | |
| Total | -10.0 | 19.1 | 0.0 | 0.5 | -8.8 | -0.8 | -9.1 |
| Own estimates | -9.6 | 17.9 | | | | | -8.2 |
| Difference in GDP points | 0.4 | -1.2 | | | | | 0.9 |
| North Africa | | | | | | | |
| BdF estimates | | | | | | | |
| Franc zone | -12.8 | 25.2 | | | -11.4 | -0.9 | |
| Rest of World | -1.3 | 0.0 | 0.4 | 0.7 | 0.0 | 0.2 | |
| Total | -14.1 | 25.2 | 0.4 | 0.7 | -11.4 | -0.7 | -11.1 |
| Own estimates | -12.8 | 24.5 | | | | | -11.7 |
| Difference in GDP points | 1.3 | -0.7 | | | | | -0.5 |
| Algeria 1952-1962 | | | | | | | |
| BdF estimates | | | | | | | |
| Franc zone | -15.8 | 32.2 | | | -14.6 | -1.8 | |
| Rest of World | -1.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.7 | |
| Total | -16.8 | 32.2 | 0.0 | 0.4 | -14.6 | -1.2 | -15.4 |
| Own estimates | -15.6 | 32.0 | | | | | -16.4 |
| Difference in GDP points | 1.2 | -0.2 | | | | | -1.0 |
| Tunisia 1952-1956 | | | | | | | |
| BdF estimates | | | | | | | |
| Franc zone | -11.5 | 17.2 | | | -5.8 | 0.0 | |
| Rest of World | 0.6 | 0.0 | 0.2 | 0.3 | 0.0 | -1.1 | |
| Total | -10.8 | 17.2 | 0.2 | 0.3 | -5.8 | -1.1 | -6.4 |
| Own estimates | -7.5 | 11.5 | | | | | -3.9 |
| Difference in GDP points | 3.3 | -5.8 | | | | | 2.5 |
| Morocco 1952-1956 | | | | | | | |
| BdF estimates | | | | | | | |
| Franc zone | -5.9 | 10.2 | | | -5.3 | 1.0 | |
| Rest of World | -2.5 | 0.0 | 1.5 | 1.5 | 0.0 | -0.5 | |
| Total | -8.4 | 10.2 | 1.5 | 1.5 | -5.3 | 0.5 | -1.8 |
| Own estimates | -7.7 | 10.0 | | | | | -2.2 |
| Difference in GDP points | 0.7 | -0.2 | | | | | -0.5 |

Table C1 — Comparison between Banque de France estimates and our own, for 1952-1962 (continued)

| | Trade balance (A) | French public transfers (B) | Net current payments RoW (C) | Net capital payments RoW (D) | "Invisibles" (E) | Var. of reserves (francs and others) (F) | Residual (G)=- (A)-(B) |
|-------------------------------|-------------------------|--------------------------------------|---------------------------------------|---------------------------------------|---------------------|--|---------------------------|
| Indochina 1952-1954 | | | | | | | |
| BdF estimates | | | | | | | |
| Franc zone | -12.4 | 24.6 | | | -10.2 | -2.1 | |
| Rest of World | | 0.0 | | | | | |
| Total | -12.4 | 24.6 | | | -10.2 | -2.1 | -12.3 |
| Own estimates | -12.8 | 22.2 | | | | | -9.4 |
| Difference in GDP points | -0.5 | -2.4 | | | | | 2.9 |
| Madagascar 1952-1960 | | | | | | | |
| BdF estimates | | | | | | | |
| Franc zone | -5.0 | 8.4 | | | -2.2 | -1.2 | |
| Rest of World | -0.7 | 0.0 | -0.4 | 0.1 | 0.0 | 1.1 | |
| Total | -5.7 | 8.4 | -0.4 | 0.1 | -2.2 | -0.1 | -2.7 |
| Own estimates | -6.0 | 8.7 | | | | | -2.7 |
| Difference in GDP points | -0.2 | 0.3 | | | | | 0.0 |
| Sub-Saharan Africa | | | | | | | |
| BdF estimates | | | | | | | |
| Franc zone | -3.4 | 10.2 | | | -5.7 | -1.1 | |
| Rest of World | -0.3 | 0.0 | -0.7 | 0.5 | 0.0 | 0.5 | |
| Total | -3.7 | 10.2 | -0.7 | 0.5 | -5.7 | -0.7 | -6.6 |
| Own estimates | -4.3 | 8.0 | | | | | -3.7 |
| Difference in GDP points | -0.7 | -2.2 | | | | | 2.8 |
| AOF + Togo 1952-1960 | | | | | | | |
| BdF estimates | | | | | | | |
| Franc zone | -2.7 | 9.5 | | | -5.5 | -1.2 | |
| Rest of World | -0.7 | 0.0 | -0.4 | 0.5 | 0.0 | 0.5 | |
| Total | -3.4 | 9.5 | -0.4 | 0.5 | -5.5 | -0.7 | -6.1 |
| Own estimates | -4.1 | 7.4 | | | | | -3.4 |
| Difference in GDP points | -0.6 | -2.0 | | | | | 2.7 |
| AEF+Cameroon 1952-1960 | | | | | | | |
| BdF estimates | | | | | | | |
| Franc zone | -4.9 | 12.0 | | | -6.3 | -0.8 | |
| Rest of World | 0.7 | 0.0 | -1.5 | 0.5 | 0.0 | 0.3 | |
| Total | -4.2 | 12.0 | -1.5 | 0.5 | -6.3 | -0.5 | -7.7 |
| Own estimates | -5.0 | 9.5 | | | | | -4.5 |
| Difference in GDP points | -0.8 | -2.5 | | | | | 3.3 |

Source: Annual reports of the Comité monétaire de la zone franc, from 1956 to 1962, for the BdF (Banque de France) estimates; see section 3, Table 2 and Figure 6 of the paper for our own estimation.

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