

# French Colonial Trade Patterns: European Settlement, Networking and Institutions

Tania El Kallab\*      Cristina Terra †

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## Abstract

We investigate how the colonial strategy through the settlement decision affected French trade patterns. In this regard, we construct a new database relying on various primary historical sources containing information on the value of French sectoral trade between 1880 and 1913. We suggest two channels through which European settlements might have impacted the French trade patterns: institutions and networking. Our results suggest that worse institutions in the French colonies increased the levels of extraction through trade, whereas better institutions in the British colonies promoted better trade relations with France. Even among the extractive environment, the network increases overall French trade within French colonies but reduces it in other colonies.

**Keywords:** European Settlement, Institutions, Networking, Trade, Colonization

**JEL classification:** D85, N50, N53, N70, P16, P51

## 1 Introduction

Economic exploitation is widely held to have been the driver of colonization: European settlement in the 1900's was a way to establish colonization while trade served as tool for exploitation. Although political power rivalry might have been another driver of colonial expansions, economic motives remain the ultimate goal of colonization. This economic facet of colonialism is important because it has a longstanding influence on current economic disparities among the former colonies (Acemoglu, 2001; Alam, 1994; Bretocchi, 2001; Kown, 2011; Lange, 2006; Nunn, 2008-2009; Sylwester, 2007). European powers established their colonial control by settling in the colonies and exploiting their resources through trade. This assertion is not new to the literature and can be traced back to Hobson, Lenin and on down to Marxist thinkers, who regarded trade as the prime cause of imperialist expansion (Kleiman, 1976). The French colonization offers a quite representative example: French

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\*ESSEC Business School

†Université Cergy Pontoise and CEPPII

colonizers settled, namely in the form of military troops, imposed territorial powers, and set up trade policies and preferential trade agreements in order to transfer resources from the colony to themselves and secure favorable markets for their products (Crowder, 1968)<sup>1</sup>

Colonial exploitation in its "legitimate form" occurred under the veil of colonial trade, hence the latter offers an illustrative picture of how colonizers applied extractive policies in their colonies. For that reason, looking at the trade relation between one colonial empire -taking the particular case of French empire- with the different groups of colonies during the age of high imperialism help us shed the light on this angle of the colonial strategy.

To gain some perspective on this question, this paper investigates how the amount of European settlement in 1900's in the colonies affected France's level of resource extraction through trade values and patterns, as well as whether those patterns of trade differ if the trading partner were the French colonies or other colonies. Figure 1a depicts the transmission mechanisms of colonialism on trade. We hypothesize that if the French settled in their colonies for the purpose of exploiting their raw materials and using their markets to sell their products, one would expect more french imports of raw materials and exports of manufactured goods as a result of this settlement, as arrows 1 and 2 in figure 1a illustrate. Meanwhile if the British or other Europeans settled in their respective colonies, this would not necessarily increase French imports of other colonies' raw materials. In the case where the British settlement had a positive impact on French bilateral trade with the British colonies, this would mean that the latter were engaging in favorable trade<sup>2</sup> with France as arrows 1 and 3 of Figure 1a show.

While some studies explore this issue in a related way by looking at the effect of colonial status on bilateral trade<sup>3</sup>, they only rely on colonial dummies and total trade instead of sectoral bilateral trade. They show that being colonized exerts a positive impact on total bilateral trade.

Colonial settlements clearly mattered for economic exploitation, but through which channels did those settlements impact French trade patterns with the various groups of colonies? We argue that European settlements had (1) a direct effect on colonial relations related to the social network developed through their presence and (2) an indirect one related to the type of institutions they have introduced. To investigate this relationship, we empirically separate the network effect of settlement

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<sup>1</sup>A country's trade with territories politically dependent on it is more profitable than its trade with the rest of the world. In cases where trade monopolies were granted to empires, they need not, in theory at least, to have affected the colony's choice of trade partners. "But the growing internal democratization of the colonial powers [...] required a trade structure biased towards the metropolitan country as a necessary condition for the economic exploitation of colonial territories through trade [...]" (Kleiman, 1976, p.459).

<sup>2</sup>Favorable trade is defined in this context as the one that allows countries to engage in exchange wherever it is mutually profitable to both parties, unlike the "forced trade" or the extractive trade that is a form of resources exploitation.

<sup>3</sup>Mitchener and Weidenmier, 2008; Rose 2000, 2002; DeSousa & Lochard, 2012

from its institutional effect. We first estimate the impact of the share of European settlers in 1900 on the French sectoral imports and exports and then estimate separately the channels through which this effect might have operated as mentioned above: the networking (reflected under two indicators which are common language with the colonizer and duration of colonization), and the institutions (reflected under democracy and constraints of the executive).

Regarding the network effect, in a recent study on the causal relationship between migration and trade, Bacarreza et al., (2006) used 1990-2003 data from Bolivia, to show that the presence of foreign immigrants in Bolivia and of Bolivian emigrants abroad have positive and significant effects on Bolivian bilateral trade. A similar argument can be applied to the colonial era: Glaeser et al., (2004) argued that European settlers brought more than just institutions to the New World: they also brought their own selves. Settlers promoted their language and got acquainted with the system, habits, and traits of the colonies which reduced transaction costs and made the exploitation of resource traded easier, as arrows 1,2 and 4 in figure 1b depict.

Another channel explaining settlement is institutions. In their paper on the colonial origins of comparative development, Acemoglu, Johnson and Robinson, (2001) argued that where Europeans migrated in large numbers, they introduced European-style institutions with property rights checks and accountability for the governor and higher levels of democracy. Those institutions persisted and impacted positively the economic performance of those countries who inherited the "good" institutions. Recent studies, on their turn, show that a higher quality of institutions exerts significant positive effects on current bilateral trade flows due to the decreasing transaction cost and increasing level of trust (Briant et al. 2009; DeSousa & Lochard, 2010; De Groot et al. 2004; Linders, 2004). We hypothesize similarly that such institutions if introduced by the colonizer, could lead to favorable trade between the the latter and the colonies. That is, if for instance, British settlements introduced such institutions ("good institutions"), this would result in favorable total trade and trade patterns between France and British colonies, as depicted in points 3, 5 and 7 of Figure 1b. On the other hand, if French settlements introduced policies that perpetuated inequality and exploitation, it should increase the level of imports of raw materials from French colonies and thus the level of extractive trade as points 6 and 8 in the same figure show. This relationship is embodied in the larger literature examining the longstanding impact of institutional legacy on current economic performance (Acemoglu, 2001; Alam, 1994; Bretocchi, 2001; Kown, 2011; Lange, 2006; Nunn, 2008-2009; Sylwester, 2007).

In this regard, we constructed a new data set with more than 20,000 observations containing information on the value of French imports and exports with each of its trading partners between

1880 and 1913. The data were collected from "Tableau General du commerce" which is the most complete and reliable database, as it is the official data of the French Customs. Our data are superior to previous work in the sectoral and directional dimensions as it contains information on the exports and imports of France with each of its trading partners, disaggregated into four sectors: agricultural raw materials, food, raw material necessary for industry, and manufactured goods.

Prior to our work, a number of studies investigated the impact of colonial status on both historical and current trade (Estevadeoral et al., 2003; Mitchener Weidenmier, 2008, DeSousa & Lochard, 2012) while others have examined the effect of independence on post-colonial trade (Mayer et al., 2010; Lochard & Lavallée, 2012). No paper to our knowledge has focused on understanding how colonial settlements through both channels of networking and institutions impacted differently the types of products traded between France and various colonial groups. This gap is partly due to the fact that their samples lacked such detailed data on colonial and sectoral French trade.

We find that higher French settlement increased the overall French imports and exports from French colonies. The impact is stronger with respect to imports of raw materials suggesting that French settlements did facilitate the extraction of raw materials. The British or other European settlements in their respective colonies lead to a decrease in the trade of those colonies with France.

Interestingly, our results not only show the impact of European settlements on trade patterns but also point out that the mechanism through which membership in an empire exerted positive effects on bilateral trade as previously found by Mitchener and Weidenmier (2008) is through European Settlements. Actually, once we control for European settlements in the various groups of colonies, colonial dummies exert either insignificant or negative effects on French trade. Such results go beyond those found in previous literature.

We then separately examine the impact of institutions and of networking through European settlements.<sup>4</sup> We find that in French colonies, worse institutions promote French imports of raw material and French exports of manufactured goods. These results confirm our hypothesis stated earlier that France was better at exploiting its colonies in the presence of extractive institutions. On the other hand, higher institutional quality in the British colonies is associated with higher trade between those colonies and France confirming also that better institutions promote favorable trade in the absence of power imbalance between the two trading partners.

As for the networking effect, we find that stronger networking between France and its colonies increased French exports and imports in French colonies, with the highest magnitude attributed to

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<sup>4</sup>As we will explain in the next sections in the paper, we empirically disentangle the settlement effect between these two channels.

French imports of raw agricultural goods. In the French colonies, the positive impact of networking is complementary to the negative impact of institutions in the sense that extractive policies can be more easily implemented whenever the colonizer have acquired greater power through networking. This in turn, would boost extraction through trade. We also found that the stronger network relation developed between British settlers and their respective colonies, is the less trade will be conducted those colonies and France. These results still hold after controlling for endogeneity problems and for the different choice of instruments.

This paper is organized as follows: Section 2 presents an overview of the literature examining the link between colonial settlement and the promotion of trade. Section 3 presents the gravity model, the data used in the empirical setting, and the core results. Section 4 depicts the channels through which settlement might have affected trade. The last section provides a conclusion.

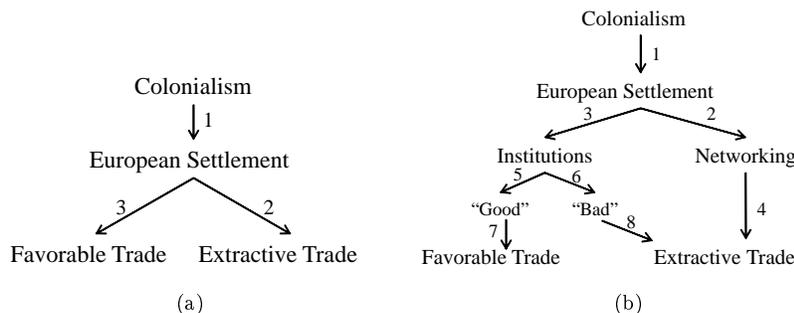


Figure 1: Motivation scheme

## 2 Colonization, Settlement and Trade

A careful reading of the economics and history literature suggests a variety of reasons to explain why colonization might have affected the patterns of trade during the high imperialism period. As the main goal of colonialism, trade was initiated by principles of mercantilism and of imperialism. Betts (1961) and Kown (2011) relate the expansion of imperial control to mercantile economic policies, which led to demands for formal political control. Mitchener and Weidenmier (2008) further argue that, prior to the Industrial Revolution, colonial acquisitions were continuously sought by imperial powers to complement their growing economies, which ultimately affected colonial trade. The authors find that belonging to an empire doubled trade relative to those countries that were

previously not part of an empire.<sup>5</sup> These findings are consistent with previous literature suggesting that colonial domination has increased colonies' trade with their metropolitan countries (Bairoch, 1981; Kleiman, 1976).

In its extreme form, colonization reflects some form of "enforced trade", which implies some monopolization of colonial trade, "forcing the colony's population to buy their imports for more and to sell their exports for less than going world prices" (Kleiman, 1976, p. 1). To a lesser extreme, colonies are not entirely subjugated to the colonizer and have some level of internal sovereignty; hence, exploitation in its literal sense becomes difficult and "a trade structure biased towards the metropolitan country is needed for the economic exploitation of colonial territories through trade" (Kleiman, 1976, p. 1). Colonization facilitates trade by using power to impose preferential trade policies, currency and custom unions (Crowder, 1968; Estevadeordal et al., 2003; Furgeson & Schularick, 2006; Lal, 2004; Mitchener & Weidenmier, 2008). Using French colonization as an example, the French benefited from low-cost imports, especially agricultural goods, and from some trade agreements that gave large advantages to French exports (Amin, 1971, 1973; Lavallee Lochard, 2012).

According to Head et al. (2010), former colonies' trade with the metropolis, three decades after acquiring its independence, would shrink by more than 60% due to the termination of some forms of formal or informal trade agreements. Hostile separations put an end to any form of influence or domination, leading to immediate reductions in trade. Similar results were put forth by Lochard and Lavallée (2012), who show that an independence event reduce the overall post-independence trade mainly within the French colonies. These results suggest that colonial trade was upheld against the interests of the inhabitants of the colonies and, consequently, the attainment of sovereignty would be followed by a decrease in bilateral trade.

Such results are contradicting as independence leads to a decrease but not a total elimination of trade, suggestion that part of the trade was beneficial. Thus, colonization and the resulting trade agreements only partially explain the extractive trade, because a colony's tendency to trade with its empire might be driven by preferential treatment or other conditions favouring such trade, even in the absence of colonial domination. One aspect distinguishing various types of dependencies is whether colonies were free to decide what and with whom to trade outside their colonial empire. This distinction can be made using our data: for example, if British colonies with better institutions

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<sup>5</sup>Agricultural exports boomed in the Gold coast, including Senegal, Ivory Coast and other French colonies in West Africa; in return, these colonies began to import Europeans manufactured goods. In Indochina (a French colony), the land under cultivation dramatically increased, allowing it to become the third largest producer of rice in the world (Mitchener & Weidenmier, 2008)

traded with French empire, this indicates that regardless whether they were forced or not to trade with their own empire, they were also allowed to engage in favourable trade with external partners such as France.

As indicated in the introduction, the main goal behind this research is that Europeans settlements in colonies in the 1900s, might have had a direct and indirect impact on the trade relations between the two countries: On the one hand, settlements led to the establishment of connections that deepened the colonizers' networks, enabling them to maintain more extractive policies and exploit resources more easily. Engerman and Sokoloff (1997) assert that countries endowed with favourable climates and soil conditions for crops encouraged European settlement, but ultimately ended up with unequal slave economies to fall in the hands of a small elite who implemented policies and institutions that perpetuated inequality, thereby lowering incentives for investment and innovation.

On the other hand, settlements led to the creation of European style institutions that lowered the level of enforced trade. Acemoglu et al. (2001) argue that, whenever Europeans found viable areas, they tended to settle, build infrastructure, and promote European-style institutions that have persisted until today; wherever they faced tropical soils and diseases, they confronted the high costs of cultivation, building and trade, which demotivated the settlers, leaving them with only extractive institutions (Acemoglu et al., 2001; Nunn & Puga, 2010).

European settlements, whether extractive or institutional, increased French trade. In order to empirically investigate how the latter affected the French extractive versus favorable trade patterns with the various colonial groups and to assess the importance of European settlements on trade as compared to other factors that might also affect trade, we will estimate an augmented gravity model in the next section.

### 3 Baseline Model and Estimated Equations

For our empirical analysis, we use an augmented gravity model to include the share of European settlers in the 1900s among every 100 inhabitants in the host country (denoted by European settlement) as a main explanatory variable, together with mass, distance and a number of economic and geographical variables (i.e., currency and custom unions, tariffs, wars, landlocked and colonial dummies). The climate variables are particularly relevant to our sectoral sample as they affect agricultural productivity. The colonial status dummies are also relevant as they help shed light on whether settlements within colonization mattered for trade or whether only the colonial status per se affected trade. We also include an interaction term between European settlement and colonial dummies in order to check whether the impact of French settlements differs from settlements from

other colonizers in their own colonies.<sup>6</sup>

The gravity model is the workhorse model for examining trade flows and is used extensively in the literature due in part to its good fit to the data. In its basic form, the model suggests that the bigger the mass, that is, the larger the economy, the greater the trade is, whereas the larger the distance (a force of resistance), the lesser the trade. We will estimate several regressions of the following standard gravity equation:

$$\ln(\text{Trade})_{its} = \beta_0 + \sum_{j \in J} \beta_j D_{ij} ES_i + \beta \mathbf{X}_{it} + \epsilon, \quad (1)$$

where  $i$  denotes the country France is trading with, and  $t$  the year in which trade occurred,  $s$  denotes the sector of trade; we included four sectors: food, agricultural raw materials, raw materials for industry and manufactured goods.  $j$  is one colonial group within  $J$  the set of colonizers such as  $J = (\text{France}, \text{Great Britain}, \text{other empires}, \text{former empires})$ .  $D_{ij}$  are colonial Dummies for British, other and former colonies.  $ES_i$  is an abbreviation of European Settlements in 1900 in country  $i$ . The interaction between  $D_{ij}$  and  $ES_i$  and the subsequent four different  $\beta_j$  allow us to differentiate how European settlements in French colonies affect French trade with those colonies compared to how European settlements in British, other and former colonies affect those colonies' trade with France. The last term is the stochastic error term, which captures all other (omitted) effects on trade and is assumed to be well-behaved.

$\mathbf{X}$  is a vector of explanatory variables composed of:

$$\begin{aligned} X_{it} = & (\ln(\text{population density in 1900})_i, \ln(\text{distance})_i, \text{landlock}_i, \text{Interstatewar}_{it}, \text{Frenchwar}_t, \\ & \text{trade preference}_{ijt}, \text{custom union}_{ijt}, \text{currency union}_{ijt}, \text{temperature}_i, \text{Humidity}_i, D_{ijt}), \text{ for } j \in J \end{aligned}$$

The control variables are population density in 1900 capturing the size of a country, the distance between France and its trading partner, dummies capturing whether the trading country was landlocked, dummies capturing whether country  $i$  was in a state of war and another dummy showing whether France was at war during the sample year. Following earlier studies, we also incorporated historical-institutional dummies: Nine distinct dummies show whether country  $i$  was part of a formal or informal trade preference, currency union and custom union with one colonial group  $j \in J$ , where  $J = (\text{France}, \text{Great Britain}, \text{other empires}, \text{former empires})$ . These variables are relevant to control for, because such trade agreements are supposed to increase French colonies' trade with

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<sup>6</sup>We assume that European settlement in British colonies was mainly carried out by the British as French people had not interest in settling in British colonies during the colonial era. The results in the following tables confirm our assumption.

France while reducing it for other colonies. We also included climate indicators (temperature, humidity) and finally colonial dummies  $D_{ijt}$  showing whether country  $i$  was either a French, British, other or former colony at time  $t$ .

We estimate equation (1) using pooled ordinary least squares, with year fixed effects to control for any random annual shock. Country fixed effects were not included since we already controlled for many relevant country specific effects in the equation. In regressions not reported in this paper, country fixed effects show insignificant results for most of the countries.

### 3.1 Data and Descriptive Statistics

We have constructed a large database of annual French sectoral trade from French statistical primary sources. In particular, we relied on numerous volumes of the "Tableau Général du commerce de la France" and the "Tableau décennal du commerce de la France". The data include more than 20,000 observations of French bilateral imports and exports from 1880 to 1913 for a total of 98 colonies, including 27 French colonies, 37 British colonies, 17 other colonies and 17 previous colonies.<sup>7</sup> The data are disaggregated into the following sectors: agricultural raw materials; raw materials for industry; and manufactured products. The French exports reported as agricultural goods consist mainly of food products produced in France (flour, wine, oil) and not agricultural raw material, while its imports of agricultural products, are basically raw materials (i.e., wheat, sugar, fruits). We note that France biggest share of exports to its colonies consisted of food sector which accounts for more than 80% of French colonial exports. The raw materials for industry consist of mining products such as gold, cobalt, phosphate, iron, wood, and wool. The manufactured goods consist of all things produced by either France or the colonies.

The trade data were originally collected at the aggregate level by colonial groups and geographical regions and were subject to continuous changes throughout the years of the sample. Taking into account, on a yearly basis, the political and historical events (i.e. colonization, independence, creation of a nation, new groups entering the sample), we were able to assign the appropriate countries to each colonial group, using population density collected from Mitchell (2007) and Madison (2005)

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<sup>7</sup>French colonies: Algeria, Benin, Burkina Fasso, Cambodia, Central african Republic, Chad, Congo, French Guiana, French Polynesia, Gabon, Guadeloupe, Guinea, Ivory Coast, Laos, Madagascar, Mali, Martinique, Mauritania, New Caledonia, Vanuatu, Niger, Reunion, St Pierre and Miquelon, Senegal, Vietnam, Morocco, and Tunisia. British colonies: Antigua and Barbuda, Australia, Bahamas, Bangladesh, Barbados, Botswana, Virgin Islands, Cyprus, Dominica, Fiji, Gambia, Ghana, Gibraltar, Grenada, Guyana, Jamaica, Kenya, Malawi, Malta, Mauritius, Myanmar, New Zealand, Nigeria, Pakistan, Saint Lucia, Sierra Leone, Solomon Islands, Somalia, South Africa, Sudan, Tanzania, Trinidad and Tobago, Uganda, Zambia, Zimbabwe, Egypt, and India. Other colonies: Angola, Aruba, Cameroon, Cuba, DR Congo, Equatorial Guinea, Guinea Bissau, Indonesia, Mozambique, Namibia, Philippines, Puerto Ricco, Sao Tome and Principe, Suriname, Togo, Virgin Islands (US), and Western Sahara. Previous colonies: Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Mexico, Peru, USA, Uruguay, and Venezuela

as a weight to assign trade values for each country.<sup>8</sup> The disaggregation of the countries from the group level to the individual level, as described above, is presented in table A.2 in the appendix.<sup>9</sup>

We deflated the data using the INSEE published index of prices calculated from the gross prices of 45 products (base 100 Francs 1914). We collected trade data as early as 1880 because colonial quests and trade expansion witnessed a significant increase starting the early 1880s. However, even though our data extend from 1880, for this empirical regression we start in 1890 in order to maintain the time frame between trade and settlements. Our European settlement variable is time invariant representing the year 1900. From various historical backgrounds, we believe that Europeans started to settle extensively in the colonies in the early 1890's which is the period of colonial expansion. The settlements that occurred in 1890's did not vary significantly within the 10 subsequent years. Hence, our available data on European settlement in 1900 is thought to capture most accurately the settlement from 1890 until 1913 which is the period capturing also our trade data.<sup>10</sup>

European settlement in the 1900s is the percentage of the population that was European or of European descent in the year 1900 in the countries included in our sample. We argue that European settlements is mainly due to the colonial settlements and hence relate each European colonizer to its colony. The data on European settlements is from Acemoglu et al. (2001), and the missing values for some French colonies were completed using data from Huillery (2011). Huillery's data were collected at the district level for the countries of West Africa; thus, we aggregated the data to the national level and transformed the share from per mil into percentages to match the initial data from Acemoglu et al. (2001), as shown in Table A.1 in the Appendix.

We would have liked to include GDP to measure mass in our gravity model; however, reliable annual estimates for the period of study are not available. We therefore use population per square kilometer from Nunn (2011). In the pre-industrial, Malthusian era, population density can be used as an appropriate measure for a society's economic performance since, at the time, any technological improvement led to population increases rather than per capita income increases (Engerman & Sokoloff, 1997). Michael Kremer (1993), Galor (2005) and Ashraf and Galor (2011) provided theoretical and empirical analyses of the relationship among population size, population density and long-term growth in Malthusian times (Madison, 2006; Mitchell, 2007). Missing data were adjusted and interpolated from available data based on population dynamics.

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<sup>8</sup>We conducted an alternative weight measure using arable land area and added the results as robustness checks

<sup>9</sup>The groups are well defined in terms of geographical location and identity of the colonizer so we were able to accurately conduct the segregation process with minor losses of information. For details on the data construction, refer to our previous paper not yet published available from the authors.

<sup>10</sup> Extrapolating the European settlement in 1900 20 years backwards (i.e. back to 1880) is a stronger assumption and harder to justify; for any doubt, robustness was conducted for the full sample size, and the results were similar.

The distance between France and its bilateral trade partners is from CEPII, constructed by Mayer and Zignago (2011). The basic idea is to calculate the distance between two countries based on bilateral distances between the biggest cities of those two countries, with the distances being weighted by the share of the city in the country's overall population. Landlocked data were collected from the Geo CEPII data (Mayer & Zignago, 2011) and from Nunn (2008).

Following previous studies (Mitchener & Weidenmeir, 2008; Rose, 2004), who found a significant impact of trade preferences (preferential trade agreements, custom unions, currency unions) on trade, we included various dummies for trade preference, custom and currency unions to indicate whether the country was in any form of agreement with France, Britain or a third colonial power. These variables are from Mitchener and Weidenmier (2008).<sup>11</sup> The data on whether country  $i$  was at war or France was at war in a particular year were constructed based on the data from the Correlates of War website. The climate variables, average temperature and average humidity, are from Acemoglu et al. (2001), using those from Parker (1997) for the missing countries. We took the average temperature in Centigrade and the average humidity in percentages.

The colonial status dummies were constructed based on the Geo CEPII data constructed by Mayer and Zignago (2011). For the dates of colonization, we collected information from various sources. We defined the year of colonization as the year the colonizer established the colony, not the year it acquired the land. In addition, we considered only the year of independence from the colonizer, not from other conflicts. As the sample spans a long period, political states often changed, as did countries' placement and colonial status within the sample. If many colonizers established colonies in the same area, we considered only the most recent one (if established before 1880); otherwise, the country's colonial status alternated among the various colonial dummies.

Our database significantly improves upon previous trade data as it includes bilateral exports and imports and it is disaggregated into four sectors: agricultural goods, food, raw materials for industry and manufactured goods. As a result, it is better suited for sorting out the relative impact of European settlements on extractive versus mutually favorable trade. The data are annual and cover all French trading partners. We included data on 98 colonies, which includes most existing colonies during the focal time period; all have identified colonial status. This detailed and comprehensive data permits a comparative analysis of French trade with respectively French colonies, other colonies (including German, Belgian, Spanish and Portuguese) as well as former colonies. This distinction is important when attempting to estimate how different colonial settlements whether the British, the Portuguese... etc, affected their respective colonies' trade patterns with an the external trading

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<sup>11</sup>We thank Marc Weidenmier and Chris Mitchener for generously sharing their data

partner (e.g., a British colony trading with France) as well as how the French settlement shaped the trade relations with their own colonies.

Figure 2 shows the world map containing all the countries included in our sample and how they were divided among the colonial powers. Table 1 below shows the relative shares of French trade values with each group of colonies. Notice that French exports of raw materials for industry and their imports of manufactured goods were very small compared to trade in other sectors (not more than 1% of total trade). We then choose not to include exports of raw materials for industry and imports of manufactured goods in our regression, since they are not economically significant as the values of trade given that these two sectors are very low, as reported in Table 1.

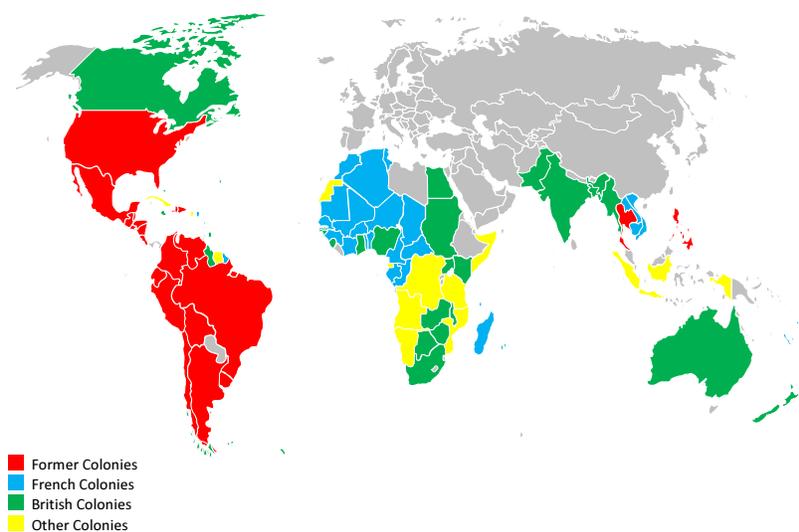


Figure 2: The trading partners of France per colonial groups

## 3.2 Empirical Results

### 3.2.1 POLS results

Table 2 reports the pooled ordinary least-squares (POLS) regressions of equation (1). The estimated coefficient for European settlements in 1900 is significant for most sectors and interaction terms. Column 1 presents the results for the impact of the explanatory variables on the total trade with France. As indicated by the coefficients of the interaction term between European Settlement with the colony dummies, we find that a higher share of settlers in French colonies increased trade with France, but a higher share of settlers in other colonies decreased trade with France. This result suggests that settlers in other colonies were mainly their colonizers; once they settled, they constrained the colonial trade with France. An interesting result is that, after interacting European

settlement variable with the colonial Dummies  $D_{ijt}$ , the French colonial dummy  $D_{iFr}$  did not seem to have a positive impact on trade with France. This result goes beyond the one found by Mitchener and Weidenmier (2008), whose result is limited to stating that membership in an empire increased bilateral trade. Our results go one step further by showing the mechanisms through which this membership impacted trade. Interestingly, once we control for this mechanism -the colonial settlements in the colonies-, colonial dummy has an insignificant or in some instances negative impact on trade with France. Those results suggest that that colonial status per se does not necessarily affect trade rather the colonial settlements and other subsequent indicators resulting from colonization.

Columns 2 and 3 of Table 2 show the impact of European settlement on French exports of food and of manufactured goods, respectively. A higher share of French settlers increase French exports of food and of manufactured products. This result supports our hypothesis: colonization, as previously argued, provided a way for the French to establish control through settlements and strengthen their trade ties in order to use the colonial market as the main consumer of its products. Marseilles (1984) observed that France, isolated within its empire and imposing the prices of products in the colonial markets through custom unions and trade preferences, exported its manufactured products to ensure the existence of solvable markets for the empire during times of crisis. With respect to the British and other colonies, more British and other European settlements has a negative impact on French exports of food and manufactured products.

One limitation in our POLS results is reversed causality. The possibility that the flag might have followed trade could produce biased results in the OLS panel regressions. One potential explanation is that the French might have been exploiting the natural resources even before formal colonization took place; hence, they did not need to, nor were they encouraged to settle in order to extract. Why is this the case? Actually, the colonial vocation was generally not popular in France. The health conditions were deplorable; tropical diseases took a heavy toll in the colonial corps between 1887 and 1912 (16% died in the colonies) (Victor Marguerite, De La Justice, *Annals Coloniales* XIII June 1, 1912). Consequently, administrators could not bring their families with them, and few men were willing to accept a lifetime career away from their families.<sup>12</sup> This being stated, as long as they were able to engage in trade, settlements overseas were limited to some traders and officers. (Cohen, 1971) This effect should decrease the OLS coefficient, and controlling for it should lead to a higher Instrumental variable coefficient. This is true as we will see in the next subsection when comparing

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<sup>12</sup>Cohen relates in his book "Rulers of Empire" that overseas French possessions were modest and scarcely populated; they consisted of plantation owners, slaves and small trade forts on the coastline of West Africa and India which were occupied by a small number of French traders and officers. Relation with the indigenous population were limited to trade and the establishment of some form of diplomatic relations with the local states (Cohen, 1971)

the POLS coefficient to the IV coefficients that the latter are higher. This effect is however more important for the imports of raw agricultural goods. This explains why in column 4 of table 2, European settlements in French colonies have a negative impact on France imports of agricultural goods due to the reverse causality issue not yet corrected for.

In the same column we see that British settlements increase French imports of raw agricultural products from British colonies. This positive effect of British settlements on French imports from British colonies can be attributed to two possible explanations. On the one hand, reverse causality might have increased the POLS estimator. The idea is that it is not the British settlements that drove British colonies to trade with France. It may have been the case that France was already importing agricultural raw products from British colonies even before colonization, and Great Britain non-randomly sought those territories expecting economic profits. On the other hand, after Britain established colonization, it set up certain trade policies with its colonies to encourage trade with other empires.<sup>13</sup> This second explanation can be confirmed by the positive estimator of trade agreements with British colonies, indicating that British colonies that signed trade agreements with Britain increased their exports of raw materials to France by 130%.<sup>14</sup>

The standard gravity variables were controlled for, although not reported in the table. Most variables enter with the correct expected sign and are, for most sectors and for overall trade, statistically significant. In terms of geographical influences on trade, all else being constant, being landlocked or far away from the trading partner reduces trade flows. Most specifications also show that larger countries (as measured here by population) trade more. Furthermore, the interstate and French war variables significantly reduce trade. No specific-year fixed effects were noted.

Although we tried to control for most factors affecting trade, as described earlier, OLS results cannot be interpreted as either causative or accurate for a number of reasons. In particular colonization may be endogenous to trade. The fact that trade might have preceded colonial expansions or even lead to it, is a plausible possibility. In order to correct for this endogeneity problem we will employ a two-stage least square (2SLS) estimation method which will be described in detail in the next sub section.

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<sup>13</sup>Britain established open door policies: An open door trade policy refers to a tariff regime where there is no distinction made between the products of the mother country and non-empire trading partners.

<sup>14</sup>Desousa and Lochard's (2012) "Trade and Colonial Status" provides further discussion of reverse causality between colonization and trade.

### 3.2.2 Identification of Instrumental Variables

A major drawback of OLS results on the impact of colonization or colonial settlements on trade is that of reverse causality: Pre-colonial trade should have exerted strong impacts on settlement and colonization decisions.

We propose three possible instruments for European settlements in 1900 for our identification strategy. The first one is pre-colonial population density (in the 1500s). Engerman & Sokoloff (1997) argue that Europeans were more likely to settle in previously poor and less populated regions because indigenous population density raises costs for Europeans to obtain and secure land for new settlers. Acemoglu et al. (2002) also argue that European settlements in 1900's are negatively correlated with pre-colonial population because the density of pre-colonial indigenous population affects the returns from setting up extractive institutions. Following the same line of arguments, Huillery's (2011) recent empirical results show that pre-colonial high population density would increase the risk of indigenous hostility and hence discourage new settlements. Based on this discussion, population density in 1500 might have had a significant impact on decisions related to European settlement in 1900. We have no reason to believe that population density in 1500 is correlated to trade in 1900.

The second instrument for European Settlements is latitude: Latitude measures the distance from equator. Europeans would be more likely to settle in a region with latitude is closer to Europe. Our starting point is the impact of favourable land and climate on the decision to settle. Favourable conditions undoubtedly encouraged settlers to settle whereas unfavourable climate would have discouraged settlement, leading to the creation of extractive policies and mercantile colonial rules. However, latitude is also correlated to climate, and geographical conditions which favour agricultural. Latitude would then have a direct impact on trade making this identification invalid in terms of sectoral trade.

The third instrument is Settler mortality from Acemoglu et al. (2001, 2002) who argue that historical mortality rates were influential in shaping the pattern of European settlement in former colonies. However, the main constraint in settler mortality data, aside from doubts about its various sources (Albouy, 2005), is the fact that it can be correlated with two main ecological handicaps: low agricultural productivity and a high burden of diseases. Thus, this instrument correlates with agricultural trade and then not valid.

All in all, population density in 1500 seems to be the most appropriate instrument since unlike the other two, it should have no direct relation with trade in 1900 unless through European settlements.

Our identification can be expressed as follows:

$$\text{European Settlement} = \alpha_0 + \alpha_1 \text{popden1500} + \boldsymbol{\alpha} \mathbf{X}_{it} + \vartheta \quad (2)$$

where  $\mathbf{X}$  is the vector of our explanatory variables as described previously in equation 1.

The results reported in Table 3, show that the coefficient of our preferred instrument, the population density, has the highest magnitude with an R-square of 58%. The coefficients of latitude and settler mortality taken alone, have high magnitudes and strong explanatory power with R-square respectively 50% and 70%, when taken with population density, this magnitude decreases dramatically confirming the superiority of population density in 1500 as an instrument. Note, nevertheless that these other two instruments will be used for robustness purposes.

### 3.2.3 2SLS Results

Column 3 of Table 3 reports the first stage results of our instrumental variable regression using population density in 1500 as an instrument for European Settlement, whereas Table 4 reports the second stage results of the same regression. Columns 1 to 3 report the instrumental variable results for respectively total trade, exports of food and exports of manufactured products. Those results are very similar to the baseline regressions for most of the sectors and most of the variables in the regressions and are robust and significant: Higher settlements in French colonies increase both total trade and French exports of food and manufactured goods to those colonies whereas, higher settlements in British and other colonies decrease total trade with France and French exports to those colonies.

It is interesting to note that the coefficients for imports of raw agricultural material are opposite to the ones in the POLS as shown in column 4 of Table 4. The 2SLS results indicate that an increase of a 1% point in French settlements increased the French imports of agricultural goods from French colonies by nearly 8%, whereas an increase of a 1% point in the share of British settlements decreased French imports of agricultural goods by nearly 6%. Once we controlled for reverse causality, our results indicate that French settlements would facilitate extraction, causing imports of raw agricultural material from their colonies to increase. This result is in line with what Marseilles (1984, p. 75) wrote: "The colonial empire was reserve tank of agricultural commodities" (translation by the author).

Column 5 shows positive and significant effect of British settlements on French imports of industrial raw materials from the British colonies. A possible explanation for this result would be

that British colonies might had a comparative advantage in raw material for industry, which they were able to exploit due to the "open door" policy of Great Britain (refer to footnote13). In other words, British colonies under open door trade policy did not have a preferential tariff with their metropole, so that they trade with other partners such as France. Even though results indicated that British settlements negatively affected overall French trade with the British colonies, this effect varies depending on the sector in question. We hope to shed further light on this result once we disentangle its effects between network and institutions in section 4.

To provide some additional insights to the effects of European settlements on sectoral French trade, it is interesting to look at the export boom in French West Africa—namely, in Senegal and the Ivory Coast—between 1897 and 1913. Timber exports from the Ivory Coast increased by a factor of six in twenty years (Frieden, 2006), as colonial imports of European manufacturers grew. In Indochina (which was under French colonial regime), the area of cultivated land dramatically increased, allowing it to become the third largest producer of rice in the world (Mitchener & Weidenmier, 2008). French settlements strengthened their ties between the empire and its colonial markets, achieving the ultimate goal of French colonization, as stated by Jules Ferry in his 1911 essay “La politique coloniale était fille de la politique industrielle.” France used the colonial markets as both a buffer in times of crisis and a profitable alternative in times of expansion to dispense its products (Marseilles, 1984).

### 3.3 Robustness Checks

To check whether our results are sensitive to the specification of the econometric model, we conducted a series of robustness checks. The first column in Table 5 is the same as column 1 in Table 2 used for here as a reference for comparison. The first test we conduct is by including the full sample of trade from 1880 to 1913 instead of 1890-1913. The inclusion of 10 additional years (i.e., 1880–1890) does not change our results. As shown in column (2) of Table 5 French settlements still had a statistically significant effect on overall trade. The results are similar to the base sample POLS in column 1 for the remainder of the control variables (not reported here). Column 3 present results of the same regression, but disaggregating trade data from the original region to the country level using arable land area instead of population. The data were assembled using a variety of sources, including Mitchell (2007), Madisson (2006) and Nunn (2009). Although the individual values of trade associated to each country differ under this specification, the estimated coefficients of our main explanatory variables and the remaining control variables are similar results to the ones in the

base regression in column 1.

Columns (4) to (7) in Table 5 use alternative instrumental variables, as previously discussed. We first check whether the use of settler mortality and latitude as instrumental variables, compared to our initial instrumental variable, changed our results; we then included all three instrumental variables together. Our results seem to be robust to all specifications: French settlements did increase overall French trade in the French colonies whereas other European settlements reduced it. The other variables in the gravity model generally have the predicted signs and are statistically significant at conventional levels.<sup>15</sup>

## 4 The Settlement Effect

Our empirical results suggest that European settlements in the late-nineteenth and early-twentieth centuries positively and significantly affected trade within the French colonies and negatively affected trade for some sectors of British and other colonies. These results convey that settlements can contain different underlying channels through which they affected trade. They can operate through networking or, indirectly, through institutions. In this section, we explore these channels through which settlements might have affected the patterns of trade flows. On the one hand, we argue settlers who were attracted by the land and low labour income in the colonies used their presence and connexions as a means to uphold extractive policies and facilitate full control over the resources, as we hypothesize will be the case of French imports from French colonies. On the other hand, European settlers might have also brought their European-style institutions and invested in infrastructure which promoted innovation and industrialization, as is the case of the British colonies (i.e., neo-Europe). We hypothesize that those institutions brought by the British settlers to their colonies would promote their trade with France. In the next subsection, we discuss the two channels in turn: networking and institutions.

### 4.1 Networking

A first channel through which European settlement might have boosted French colonial trade is networking. Recent studies have highlighted the importance of networks in monitoring trade in unorganized exchange markets as they facilitate matching the seller/buyer and fostering deals where laws of contract are weak (Rauch, 1999). Some evidence in the trade literature suggests that weak

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<sup>15</sup>To ensure robustness, we also conducted the same analysis for each sector separately, (not reported here). Most variables and interaction terms showed similar results as previously reported (not reported here).

contracting institutions can be substituted by long-term relationships as well as kin- and ethnic-based networks to ensure efficient engagements (Nunn & Trefler, 2013). Moreover, Sandberg et al. (2012) argue that former trade networks have a significant effect on current trade volumes attributed to regionalism (via the enactment of regional trade agreements) and history (via the modern effects of former imperial relationships). Similarly and even more importantly in the colonies, where communication was harder, societies were less developed and legal apparatus was absent, social networking had a greater role in creating some sort of informal contract enforcement that, even under extractive policies, would enhance trade between two countries.

Networking is also linked to European settlement. Easterly and Levine (2012) as well as Glaesser, La Porta, Lopez-de-Silanes, and Shleifer (2004) argue that, when they settled, Europeans not only brought institutions, but they also brought themselves. Lasting physical settlements helped settlers enforce higher production controls over the labour, leading to potentially higher productivity; Settlers also promoted common language, thereby making communication with merchants easier. "Even in cases where the dominant language of the population differed from that of the imperial power, a lingua franca often developed around commercial centres" (Mitchener & Weidenmeir, 2008, p. 1821). Alam et al. (1994) also argues that colonizers had previously encouraged emigration into their dependencies to give a form of permanence to their occupation of these territories and strengthen their ties.

Networking established by immigration reduces costs associated with international transaction. Similar analogy can be attributed to the colonial period where immigration is deemed to represent the colonial settlements and the networks are enhanced by the duration of colonization. Following this logic, we argue that, the longer the colonization, the more likely the immigrants created an inclusive social network with the indigenous population, thereby helping to alleviate uncertainty, asymmetric information and opportunism associated with international trade. Parsons (2005) show a positive relationship between immigration and bilateral trade flows. Egger et al. (2012) also argue that migrants acquire economic, cultural and institutional knowledge about both the home and the host markets; they are able to mediate economic exchanges between those markets, thereby increasing trade above what it would be in the absence of such migration. Colonizers needed to actually settle in order to optimize the extraction of financial and natural resources by reducing information asymmetries that were even more severe during the age of high imperialism. Merchants also, had a financial incentive to learn the culture, habits and mostly the language of colonial masters in order to sell more goods and protect themselves. In such situations, the mutual benefit extracted from trade is less likely.

A simple example makes the point about the role of networks in exchanges. During the period of colonial reign, colonizers were attracted by the cheap and abundant factor endowment in the colonies. In order to extract the full rent from this "wealth", colonizers had to impose some form of subjugation only possible through establishing strong networks within the colony on the field. Actually, societies with soil, crops and coffee faced the strong presence of settlers implementing slavery and other policies that perpetuate inequality.

In order to describe the network effect, we used two proxies that we believe are likely to best represent the impact of networking as argued thus far. The first variable is the duration of colonization measured as the time spent by colonizers in the colony from the year of colonization until the year in our sample. We argue that the longer the Europeans stayed, the more familiar they became with local customs and culture, the development of distribution and marketing channels, or the formation of social networks of the colony, thereby making it easier to exploit through trade. In turn, this should decrease transaction costs associated with trade and hence increase extraction. The second variable is common language with France, which is mainly a categorical variable showing French-speaking countries along an index from 0 to 1, constructed based on the CEPII data set. The data reported the first four languages spoken by at least 20% of the population and the first two languages spoken by 9% to 20% of the population. The data contained information on whether two countries share a common ethnological language, including the creoles of the French language and a lingua franca. Based on these data and the historical background, we constructed our index for language, ranging from 0 to 1 and taking the values of 0.1, 0.2, 0.25, 0.5, 0.75 and 1. On this scale, 0.75 and 1 indicate that most of the population are French speaking or speak a French creole (if the French creole was considered a lingua franca or language of trade).

## 4.2 Institutions

The second channel linking European settlement and trade is institutions. Nunn and Trefler (2013) find that institutions seem to exert a significantly and economically important impact on the comparative advantage of advanced manufacturing goods, even after controlling for factor endowments. This effect occurs namely through factor accumulation, technological innovation and commercial enterprise. In other studies of the impact of institutions on historical and current trade flows, Mitchener and Weidenmeir (2008) and Estevadeordal et al. (2002) show that the main channels through which colonization has boosted trade occur through historical–institutional trade policies. DeGroot (2004) find that institutional homogeneity increases overall current trade flows by 13%

and that institutional quality increases it by 40% through securing and enforcing property rights in international transactions.

Yet what shapes institutional legacy during the colonial reign? Different types of colonization policies create different sets of institutions—an interpretation consistent with Acemoglu et al. (2001) and Crosby (1986), who argue that the colonization strategy was subjective to the viability of settlements. When European settlers faced favourable climate and soil conditions (resulting in low mortality rates and advantageous disease environment), they felt encouraged to stay and introduced good (productivity-enhancing) institutions which promote private property and checks against government power. This led to the creation of what Alfred Crosby called "Neo-Europe". Meanwhile, when a settlement was not viable due to unfavourable bio-geographic conditions (resulting in high mortality rates), they established extractive institutions. Engerman and Sokoloff (1997) assert that, when Europeans faced natural resources with profitable international markets but did not find the lands, climate, and disease environment suitable for large-scale settlement, they had no or little incentive to invest in institutions or infrastructure in the colonies and instead created authoritarian political institutions to extract and exploit natural resources.

Let us consider a few examples. The Belgian colonizers in the Democratic Republic of Congo did not introduce any rule of law against government expropriation; extractivists only transferred many of the colony's resources to their homeland. Between 1905 and 1914, 50% of French Dahomey GDP was extracted by the French (Manning, 1982), and taxation rates in Tunisia were four times as high as those in metropolitan France (Young, 1994). Another example is the case of the Spanish and the Portuguese colonists during the seventeenth and eighteenth centuries, who set up complex mercantile systems of monopolies and trade regulations in order to obtain gold and other valuables. Finally, British common-law colonies had better property rights and more developed financial markets compared to French, Spanish, and Portuguese colonies because of the sound economic and political institutions and culture they inherited from Britain (La Porta et al., 1998, 1999; Landes, 1998; North et al., 1998).

In order to capture institutions, we used two main variables widely used in the economic history literature. Our first variable is constraint on executive for the year 1900, which is a seven-point scale ranging from 1 to 7, with a higher score indicating more constraints. A score of 1 indicates unlimited authority for the governor, 3 indicates slight to moderate limitations by other institutional corps, 5 indicates substantial limitations, and 7 indicates executive parity or subordination. Scores of 2, 4, and 6 indicate intermediate values. A higher score refers to a better quality of institutions. Data are also from Acemoglu et al. (2001), and the missing values were completed from the polity

III data set. In the French case, the constraint on administrators was very low, leading governors to be brutal towards the indigenous population. Cohen (1971, p. 62) stated that French colonial administration was, in actual practice, a decentralized system giving nearly full authority to the men in the colonies: "The administrators tended to ignore their superiors and ruled their circles according to their whims, they would levy severe fines on the natives without serious causes and without the governors' permission."

Our second variable is democracy in 1900, which we measured using a category scale ranging from 0 to 10. A higher score indicated more democracy points from three dimensions: competitiveness of political participation (from 1 to 3 points); competitiveness of executive recruitment (from 1 to 2 points, with a bonus of 1 point if there is an election); and constraints on chief executive (from 1 to 4 points). The measurement was equal to 1 if the country was not independent on the date in question. In his recent work, Nunn (2013) showed that a tradition of local democracy is also associated with attitudes that favour democracy, better quality institutions, and a higher level of economic development. His findings not only indicated persistence in democratic institutions over time, but are also consistent with national institutions affected by local institutions.

### 4.3 Effects of Networking and Institutions on Trade Volumes and Patterns

Before assessing the effects of these channels on French trade patterns, we first disentangle the European settlements effect into two parts: one part associated with the networking effect and the second part associated with the institutions effect, as represented in equation 3.

$$ES_{OLS/IV} = \alpha_0 + \alpha_1 I_1 + \alpha_2 I_2 + \beta_1 N_1 + \beta_2 N_2 + \mu \quad (3)$$

where  $ES$  is the short of European Settlements in 1900,  $I_1$  refers to constraint on executive in 1900 and  $I_2$  to democracy in 1900.  $N_1$  and  $N_2$  refer respectively to common language and duration of colonization.  $\mu$  refers to the unexplained impact of settlement.

Table 6a reports the ordinary least squared regressions of equation 3. Column (1) of Table 6a shows the regression of European settlement on the institutional indicators, constraint on executive and democracy variables, whereas column (2) shows the same regression on the networking indicators, the common language with France and the duration of colonization. The correlation coefficient are shown in Table 6b. Results of column (1) indicate that both institutional indicators are strongly and positively correlated with European settlement with a significant R-squared of 33%. Column

(2) alternatively presents results for the networking indicators, common French language and years spent in the empire. The colony takes a value between 0 and 1 if French language is among its speaking languages. According to the results, common french language is negatively correlated with European settlements and duration in in the colony is positively correlated with European settlement. The negative result of column (2) is due to the fact that expect the French (where settlement is scarce already) no other colonies speak French. Column (3) indicates the results of both networking and insitutions impact on European settlements. We find that networks and institutions are highly correlated with European settlement and seem to capture a significant amount of the variation in settlements across colonies.

Columns (4) and (5) present some interesting results on how our networking and institutional variables are correlated with our reduced samples including respectively French and British settlements. We note that the more French settled, the lower the democracy in French colonies, whereas higher British settlements are correlated with higher democracy in the British colonies. British settlements are negatively correlated with common French language, where French settlements promoted their language. As for the last variable, the longer the British colonized, the higher their numbers in the colonies; however, the longer the French colonized, the lower their numbers. This result is consistent with French settlements not being for long-term purposes; but rather mainly limited to traders and military troops whose main role was to trade (Cohen, 1971).

We then compute the fitted values of the part of European settlements associated to networking and of the part associated with institutions in order to capture separately the part of European settlement related to each channel as reported in equation (4). In order to derive the estimators  $\hat{\alpha}_1$ ,  $\hat{\alpha}_2$ ,  $\hat{\beta}_1$ , and  $\hat{\beta}_2$  of equation (4), we estimated equation (3) twice: once using the non instrumented base observations of European settlements, then using the instrumented values of European settlements by our initial instrument the population density in 1500. The fitted values  $\widehat{ES}_{I(OLS)}$ ,  $\widehat{ES}_{I(IV)}$ ,  $\widehat{ES}_{N(OLS)}$ , and  $\widehat{ES}_{N(IV)}$  were then derived from the fitted coefficients of networking and institutions.

$$\left\{ \begin{array}{l} \widehat{ES}_{I(OLS)} = \hat{\alpha}_1 I_1 + \hat{\alpha}_2 I_2 \\ \widehat{ES}_{N(OLS)} = \hat{\beta}_1 N_1 + \hat{\beta}_2 N_2 \end{array} \right. \text{ and } \left\{ \begin{array}{l} \widehat{ES}_{I(IV)} = \hat{\alpha}_1 I_1 + \hat{\alpha}_2 I_2 \\ \widehat{ES}_{N(IV)} = \hat{\beta}_1 N_1 + \hat{\beta}_2 N_2 \end{array} \right. \quad (4)$$

We now consider the extent to which these variables mattered in shaping the type of goods traded between France and the colonial groups. We replaced the European settlement variable used in earlier empirical models, with the fitted values of institutional impact and networking impact

derived from the estimators of equation 3 and shown in equation 4 and interact those terms with the colonial dummy as we did previously in equation (1). We also add the unexplained impact of settlement  $\mu$  derived from equation (3) in order to account for all possible unexplained channels other than our two and that may impact the European settlement. The new gravity equation looks like:

$$LTrade_{ist} = \lambda_0 + \sum_{j \in J} \lambda_{1j} D_{ij} ES_{iOLS/IV} + \sum_{j \in J} \lambda_{2j} D_{ij} ES_{NiOLS/IV} + \sum_{j \in J} \lambda_{3j} D_{ij} \mu + \lambda \mathbf{X}_{it} + \varepsilon \quad (5)$$

where  $\lambda \mathbf{X}_{it}$  is a vector of explanatory variables detailed previously.

Notice that equation 5 was regressed twice, once for the POLS regression using  $ES_{iOLS}$ , and  $ES_{NiOLS}$  as will be reported in table 7 and second for the IV regression using  $ES_{iIV}$ , and  $ES_{NiIV}$  which results will be reported in table 8.

Table 7 reports the pooled OLS results of equation (5), while Table 8 reports the instrumental variable results. Similar to the previous regressions all standard gravity variables (not reported here) behave well in terms of sign and significance. France traded less with countries that are more distant, trade decreased with war, and humid and cold climate reduced trade. Trade preference with France boosted trade with its colonies; however, countries that had trade agreements with their respective empire tended to trade less with France. Colonial status exerted a negative impact on trade once we controlled for settlement and other institutional factors.

The results of both pooled OLS regressions in Table 7 and the IV regressions in Table 8 are similar for the overall trade and for the different sectors, and both show that both channels significantly account for the effects on the total and, patterns of French trade across colonies. For this reason we will simply settle for discussing the instrumental variables results only.<sup>16</sup> First the coefficients of Institutional impact of settlements in column (1) of Table 8 suggest that the worse institutions in French settlements led to a decrease of overall trade with France within the french colonies. The same is for other European settlements: better institutions in other colonies tended to reduce trade with France. For British settlements and settlements in former colonies however, better institutions were associated with higher overall trade with France. Those former colonies were already sovereign during the time where trade occurred and had the freedom to engage in mutually profitable trade.

Results of columns (2) and (3) of Table 8 also confirm our initial hypothesis. An institutional

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<sup>16</sup>Some of the instrumental variable results are higher in magnitude than the POLS results. Discussion was already made in section 3.

system lacking democracy and giving full authority to the governor would allow France to secure favorable markets for its products within its colonies, exporting her products of food and of manufactured goods.

Results in columns (4) and (5) of Table 8 suggest a few insights. More authoritarian institutions (less constraints and less democracy) in French colonies promoted exploitation of raw agricultural goods and raw material for industry. Actually, those results confirm why the French had a low incentive to establish institutions. Their settlements were mainly limited to traders and military troops, whose main role was to impose control in order to facilitate extractive policies. What they developed was a system of institutions that permitted them to exercise unchallenged control over their new acquisitions. Louis Faidherbe <sup>17</sup> wrote: "In Algeria and Senegal the aim is the same, to dominate the country at as low cost as possible and through this get the highest advantages commerce." The function of the French officials was to maintain tranquility so that the natives could work and produce and so that they could recognize the advantages of our domination. The governors were entrusted with the safety and tranquility of the circles and instructed to make sure that the inhabitants of their territory demonstrated the fidelity and obedience that they owed France (Cohen, 1971). Our results also explain why post-independence trade between France and now its former colonies sharply shrank after independence (Head et al., 2010). This decrease can be attributed to the notion of "forced trade" developed through the system of authoritarian institutions that neither promoted the welfare of the colony nor exploited its comparative advantage.

Regarding the British colonies, the results depicted in columns (2) to (5) of Table 8 also confirm our hypothesis: "good institutions" introduced by the British settlements boosted favorable trade between British colonies and France, boosting both French exports to British colonies and British colonies' exports of agricultural and industrial raw material to France. Many scholars have argued that British common law countries appear to have less corruption, better contract enforcement, and better protection of property rights. This overall higher institutional quality can reduce trade costs (Anderson & Marcoullier, 2002; Levchenko, 2007; Rauch, 1999). Moreover, the British favoured free trade policies, whereas the French generally enforced protectionist measures with their colonies. This could also translate into differences in trade costs. Overall, the British induced representative institutions in their colonies that promoted what the settlers wanted; what they wanted was freedom and the ability to get rich by engaging in trade (Denoan, 1983). <sup>18</sup> Their British administration

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<sup>17</sup>French general and colonial administrator who created the Senegalese Tirailleurs when he was governor of Senegal.

<sup>18</sup>The particular case of Australia and New Zealand is an intriguing example: settlers were namely ex-convicts who fought for the establishment of European-like institutions in order to protect their rights against the arbitrary power of landowners, who themselves, were the ex-jailors. They demanded jury trials, freedom from arbitrary arrest, and electoral representation (Acemoglu et al., 2001).

was known to be decentralized (unlike the French centralized administration) and generally based on conditions of the region's economic, social and ethnic development. Their sole purpose was to practically find ways to achieve colonial prosperity. Moreover, the British were credited with allowing the native to have a hand in government and to have a "hand-off" policy. (Betts, 1961). Chailley-Bert greatly admired the flexibility of the British colonial system, whose colonies were not rigidly categorized, were more timorous than the French ones, and were not insisting that their legal codes are applicable anywhere." (chailley-Bert, 1894)

With respect to the network effect of settlements, Table 8 also suggests that French colonies benefited most from French settlements through social networks (common language and number of years spent in the colony). The results in column 1 indicate that even among extractive policies, networking would boost overall trade. In particular, networking would increase extraction of agricultural raw material (column 4) and french exports of manufactured goods (column 3). Greater control induced by networking allowed the French to extract their colonies' raw materials and sell their manufactured products and food to those colonies. Marseilles (1984, p. 121) noted: "L'empire colonial, champs privilégié de l'exportation des capitaux français [...] un élément compensateur et un débouché stable, [...] un débouché essentiel de matières premières."

The network impact, as expected, was only effective on French trade within French colonies. A greater number of years spent in their colonies tended to promote British and German trade, but was less likely to promote French trade with those colonies. In addition, not transacting in a common language with France would make exchange less easy increasing by this the transaction costs between France and British and other colonies. Our results support the aforementioned assertion that the networking impact of British and other settlements reduced overall trade with France.

It might be impossible to test empirically all of the ways in which European settlements affected trade patterns. However, we note that the residual impact of settlements in French colonies  $\mu$  (and British and other colonies which is not reported here) is very low in magnitude for the overall trade and have no impact on some sectors. The channels we identified account for a significant amount of the dual impact of European settlement on French trade and help shed additional light on the settlement effect reported in this article.

## 5 Conclusion

How did the French, British, and other European settlements drive the French colonial trade patterns? Did the French use their political control and networks to transfer resources from the

colony to themselves as well as secure favourable markets for their products? Did the British or other settlers introduce institutions in their colonies that favour mutually beneficial trade, enabling them to trade with France outside the circle of the empire? Which of France's products mainly attracted the extractive policies? Did British colonies export their comparative advantage? We provided some perspective on these questions by constructing a new database of more than 20,000 observations, relying on various primary historical sources containing information on the value of French sectoral imports and exports with each of its trading partners from 1880 to 1913. We found strong evidence that French exports and imports were quantitatively higher to colonies with more French settlements, with the highest magnitude for French exports of manufactured goods and imports of raw materials, emphasizing that the French sought territories to both extract resources and procure markets for their products. British and other settlements, on average, led to a reduction of French overall trade with their respective colonies. However, this effect is ambiguous for sectoral trade. The settlement effect appears to be robust to a variety of econometric specifications, including instrumental variable regressions and alternative instruments and year fixed-effects.

We suggest two channels through which European settlements might have affected French trade patterns: institutions and networking. Our empirical findings suggest that the low constraints on the French governors and the low democracy rates in the French colonies drove the colonizers to perpetuate extractive policies, increasing the levels of extraction through trade. This study also demonstrates that British colonies developed better institutions than other European colonies and promoted better trade relations with France. Moreover, the different effects of social networks on different colonies help explain why the effects of European settlers on trade differ. French language and customs were especially prevalent within the French colonies, thereby reducing the transaction costs of trade and creating an extractive environment accounting for more than 100% of trade boosts. These special social network effects were no longer applicable when British or other Europeans settled; hence, we see that networking effect lessened French trade outside French colonies.

An interesting avenue for future research would be to empirically analyze how the initial endowments of colonies affected their institutional quality and economic performance. This is seen in the literature in terms of the curse of natural resources, which documents a negative relationship between specialization in natural resource production and institutional development (Ross, 1999). An earlier contributor to the literature, Barro (1999), showed that oil extraction hinders democracy. This historical evidence suggests that the institutional development depends on whether the elite or the merchants benefited from this trade (Acemoglu et al., 2005).

Understanding the relationship between colonization and trade as well as its long-term legacies

is a complicated process as colonial strategy was hard to capture. As Mitchener and Weidenmeir (year) clearly stated, some colonies' exports were produced in very controlled plantation systems whereby colonists owned and controlled the land and capital that coffee, sugar, rubber or other crops were grown on and employed low-wage, local labor in the production of these commodities. Other tradable sectors of the same colony might have been left untouched. To assess the long-term impact of colonial trade, one should look at the institutional variation within and across colonies.

Table 1: French trade with colonies

Colonies	Exports			Imports			Total
	Manufactured Goods	Food	Raw material for industry	Manufactured Goods	Agricultural raw material	Raw material for industry	
French	11%	10%	1%	1%	69%	8%	14,993,317.56
British	23%	8%	2%	0%	25%	42%	109,222.81
Other	76%	4%	1%	1%	8%	9%	494,316.28
Former	21%	9%	1%	1%	19%	48%	594,974.33
Total	14%	9%	1%	1%	65%	10%	16,191,830.97

Table 2: POLS: The Effect of Settlement on Trade

	(1)	(2)	(3)	(4)	(5)
	Total Trade	Exports		Imports	
		Food	Manufactured	Raw Agricultural	Raw Industrial
ES in French colonies	0.09* (0.048)	0.03*** (0.007)	0.04*** (0.007)	-0.04** (0.017)	0.01 (0.009)
ES in British Colonies	0.01 (0.053)	-0.03*** (0.008)	-0.04*** (0.009)	0.06*** (0.019)	0.01 (0.010)
ES in other Colonies	-0.17*** (0.052)	-0.05*** (0.008)	-0.06*** (0.008)	0.03 (0.018)	-0.01 (0.009)
ES in Former Colonies	0.05 (0.052)	-0.00 (0.008)	-0.02*** (0.008)	0.04** (0.018)	0.03*** (0.010)
French colonies	-8.48*** (1.387)	-0.46** (0.214)	-1.64*** (0.241)	-4.49*** (0.369)	-0.45* (0.251)
British colonies	-1.12*** (0.330)	-1.75*** (0.215)	-2.62*** (0.251)	-3.54*** (0.346)	-1.27*** (0.240)
Other Colonies	-2.56*** (0.477)	-3.38*** (0.297)	-4.42*** (0.339)	-5.13*** (0.481)	-2.49*** (0.285)
Trade preference w/ Britain	-0.12 (0.944)	-0.52*** (0.150)	-0.99*** (0.174)	1.30*** (0.214)	0.06 (0.145)
Gravity Standard	YES	YES	YES	YES	YES
Constant	81.14*** (5.366)	14.70*** (0.868)	17.28*** (0.941)	16.49*** (1.511)	8.16*** (1.014)
YEAR FE	YES	YES	YES	YES	YES
<b>Observations</b>	<b>1,981</b>	<b>2,130</b>	<b>2,124</b>	<b>2,086</b>	<b>2,124</b>
<b>R-squared</b>	<b>0.627</b>	<b>0.595</b>	<b>0.598</b>	<b>0.450</b>	<b>0.571</b>

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: ES refer to European Settlement in 1900. Our standard gravity variables were not reported here. The results show that they are significant and report the correct sign. The larger the economy, the higher is the trade in all sectors and the further away is the country from France, the lower will its trade with France. Being landlocked and in times of war would reduce trade. Being part of a trade agreement, custom union or currency union with France would increase trade, but being part of trade agreement with British or other empire would reduce it. Favorable climate would also increase trade.

Table 3: Instrumental Variables

	European Settlement				
	(1)	(2)	(3)	(4)	(5)
Latitude	0.46*** (0.044)			0.68*** (0.040)	0.40*** (0.052)
LSettler Mortality		-3.48*** (0.441)		-0.73* (0.406)	
lpopden1500			-6.70*** (0.322)	-6.87*** (0.281)	-6.31*** (0.331)
Constant	-16.43* (8.862)	-28.61*** (9.175)	94.16*** (8.275)	-12.44 (8.596)	(12.902)
<b>Observations</b>	<b>2,134</b>	<b>1,474</b>	<b>2,046</b>	<b>1,474</b>	<b>2,046</b>
<b>R-squared</b>	<b>0.501</b>	<b>0.702</b>	<b>0.585</b>	<b>0.827</b>	<b>0.604</b>

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 4: The Effect of Settlement on Trade: Instrumental Variable

	(1)	(2)	(3)	(4)	(5)
	Total Trade	Exports		Imports	
		Food	Manufactured	Raw agricultural	Raw industrial
ES in French colonies	0.12* (0.066)	0.06*** (0.011)	0.05*** (0.013)	0.08*** (0.017)	-0.01 (0.012)
ES in British Colonies	-0.17*** (0.064)	-0.04*** (0.011)	-0.04*** (0.013)	-0.06*** (0.018)	0.03** (0.011)
ES in other Colonies	-0.73*** (0.082)	-0.14*** (0.014)	-0.15*** (0.016)	-0.17*** (0.022)	-0.01 (0.013)
ES in Former Colonies	-0.10 (0.067)	-0.03*** (0.011)	-0.05*** (0.013)	-0.07*** (0.018)	0.04*** (0.012)
French colonies	-16.56*** (1.649)	-1.75*** (0.248)	-3.19*** (0.300)	-6.55*** (0.402)	-1.32*** (0.305)
Gravity Standard	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Constant	96.84*** (6.195)	18.35*** (1.003)	21.95*** (1.249)	18.62*** (1.400)	7.94*** (1.122)
<b>Observations</b>	<b>1,899</b>	<b>2,063</b>	<b>2,056</b>	<b>2,014</b>	<b>2,058</b>
<b>R-squared</b>	<b>0.655</b>	<b>0.620</b>	<b>0.616</b>	<b>0.503</b>	<b>0.558</b>

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: The instrument used for the above regressions is population density in 1500. ES refer to European Settlement in 1900. Our standard gravity variables were not reported here.

Table 5: Robustness Checks of Effect of Settlement on Trade

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<i>POLS</i>	<i>POLS full</i>	<i>POLS Land</i>	<i>IV latitude</i>	<i>IV Settler</i>	<i>IV Population</i>	<i>IV all</i>
		<i>sample</i>	<i>area</i>		<i>mortality</i>	<i>density 1500</i>	<i>instrumnets</i>
ES in French Colonies	0.09*	0.07*	0.006*	0.90***	1.17***	0.12*	0.42***
	(0.048)	(0.045)	(0.003)	(0.068)	(0.131)	(0.066)	(0.052)
ES in British Colonies	0.01	0.05	-0.006	0.16**	0.03	-0.17***	-0.21***
	(0.053)	(0.049)	(0.27)	(0.069)	(0.076)	(0.064)	(0.054)
ES in Other colonies	-0.17***	-0.15***	-0.04***	-0.13	0.30*	-0.73***	0.56***
	(0.052)	(0.048)	(0.006)	(0.097)	(0.164)	(0.082)	(0.183)
ES in Fomer Colonies	0.05	0.06	0.03***	0.12**	0.08	-0.10	-0.10*
	(0.052)	(0.047)	(0.004)	(0.060)	(0.081)	(0.067)	(0.056)
Constant	72.66***	82.21***	12.83***	58.62***	108.31***	80.28***	94.58***
	(5.065)	(4.790)	(0.391)	(4.480)	(6.919)	(5.709)	(6.952)
All Controls	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
<b>Observations</b>	<b>1,981</b>	<b>2,815</b>	<b>2544</b>	<b>1,986</b>	<b>1,362</b>	<b>1,899</b>	<b>1,362</b>
<b>R-squared</b>	<b>0.627</b>	<b>0.60</b>	<b>0.425</b>	<b>0.667</b>	<b>0.71</b>	<b>0.655</b>	<b>0.694</b>

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: ES refer to European Settlement in 1900. The first column is the base regression for POLS. Column 2 and 3 report results with different data specifications. The Column 2 includes the full sample from year 1880-1913. Column 3 reports results for different weights values of trade. Trade data was diasgregated from the region level to the country level using arable land area as a weight instead of our base one which is the population. Column 5 6 and 7 use different instrumental variables. The results for the standard gravity variable are also significant and exert the correct sign for the various specifications. The bigger the size, the higher is the trade ofr all sectors and the further is the country from France, the less likely they will trade with France. Being landlocked and in times of war would reduce trade. Being part of a trade agreement, custom union or currency union with france would increase trade, but being part of trade agreement with british or other empire would reduce it. Favorable climate would also increase trade. Colonial dummies seem to exert a negative impact on trade. Those results indicate that that colonial status per se does not necessarily present a positive impact on French trade if settlement and trade policies are not accounted for.

Table 6: The channels of European Settlement

(a) The channels of Settlement

			French Settlement	British Settlement
	(1)	(2)	(3)	(4)
Constraint on Executive	0.92** (0.438)		-2.12*** (0.532)	0.06 (0.052)
Democracy	4.42*** (0.359)		5.76*** (0.398)	-0.14*** (0.020)
Common Language		-5.22*** (0.920)	3.70*** (0.724)	4.01*** (0.334)
Duration of colonization		0.06*** (0.003)	0.05*** (0.004)	-0.004*** (0.000)
Observations	2,068	2,134	2,068	2,068
R-squared	0.333	0.145	0.411	0.094

(b) Correlation Matrix

	Constraint on Executive	Democracy	Common Language	Duration of Colonization
<i>Constraint on Executive</i>	1			
<i>Democracy</i>	0.5801	1		
<i>Common language</i>	-0.1525	-0.2074	1	
<i>Duration of colonization</i>	0.3551	0.2026	-0.2262	1

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7: POLS: The effects of channels of settlement on trade

	(1)	(2)	(3)	(4)	(5)
	Exports			Imports	
	Total Trade	Food	Manufactured	Agriculture	Raw industrial
Institutional effect in					
French Colonies	-0.46*** (0.084)	-0.07*** (0.015)	-0.09*** (0.014)	-0.10*** (0.029)	-0.08*** (0.015)
Institutions effect in					
British colonies	0.66*** (0.089)	0.08*** (0.016)	0.12*** (0.015)	0.09*** (0.030)	0.12*** (0.016)
Institutions effect in					
Previous colonies	0.41*** (0.088)	0.06*** (0.016)	0.07*** (0.015)	0.07** (0.030)	0.09*** (0.016)
Institutions effect in					
Other colonies	-1.36*** (0.299)	-0.21*** (0.045)	-0.32*** (0.065)	-0.37*** (0.056)	0.08 (0.052)
Network effect in					
French Colonies	1.27*** (0.119)	0.24*** (0.018)	0.23*** (0.019)	0.34*** (0.032)	0.10*** (0.025)
Network effect in					
British colonies	-0.72*** (0.154)	-0.23*** (0.024)	-0.31*** (0.027)	0.03 (0.042)	0.02 (0.028)
Network effect in					
Previous colonies	-0.88*** (0.191)	-0.25*** (0.029)	-0.21*** (0.035)	-0.32*** (0.053)	-0.01 (0.040)
Network effect in					
Other colonies	-0.30** (0.129)	-0.12*** (0.021)	-0.11*** (0.021)	-0.12*** (0.037)	0.02 (0.025)
Residuals in French					
Colonies	-0.19*** (0.045)	-0.02** (0.007)	-0.00 (0.007)	-0.13*** (0.016)	-0.01 (0.009)
French colonies	-16.75*** (2.804)	-3.08*** (0.415)	-3.58*** (0.548)	-7.81*** (0.771)	-0.96 (0.609)
Control Variables	YES	YES	YES	YES	YES
Constant	115.41*** (5.537)	21.50*** (0.881)	21.88*** (1.007)	28.82*** (1.543)	11.07*** (1.195)
Year Fixed Effects	YES	YES	YES	YES	YES
<b>Observations</b>	<b>1,916</b>	<b>2,064</b>	<b>2,058</b>	<b>2,020</b>	<b>2,058</b>
<b>R-Squared</b>	<b>0.745</b>	<b>0.707</b>	<b>0.701</b>	<b>0.615</b>	<b>0.631</b>

Robust standard errors in parentheses

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1

Note: The institutions effects and network effects represent the fitted values of the European settlements explained by either as shown in equation 5. The residual is the unexplained part of the settlements. The standard gravity variables not reported in this table show that they are significant and exert the correct sign.

Table 8: IV: The Effects of channels of settlement on Trade

	(1)	(2)	(3)	(4)	(5)
	Total Trade	Exports		Imports	
		Food	Manufactured	Agriculture	Raw industrial
Institutions effect in French colonies	-0.68*** (0.109)	-0.10*** (0.020)	-0.13*** (0.017)	-0.17*** (0.039)	-0.11*** (0.020)
Institutions effect in British colonies	0.96*** (0.117)	0.12*** (0.021)	0.17*** (0.020)	0.16*** (0.040)	0.16*** (0.021)
Institutions effect in Previous colonies	0.62*** (0.116)	0.08*** (0.021)	0.10*** (0.019)	0.12*** (0.041)	0.13*** (0.022)
Institutions effect in Other colonies	-2.62*** (0.513)	-0.42*** (0.075)	-0.62*** (0.112)	-0.65*** (0.093)	0.09 (0.088)
Network effect in French colonies	1.35*** (0.109)	0.26*** (0.017)	0.25*** (0.018)	0.32*** (0.029)	0.13*** (0.023)
Network effect in British colonies	-0.62*** (0.157)	-0.22*** (0.025)	-0.31*** (0.028)	0.11*** (0.042)	0.02 (0.028)
Network effect in Previous colonies	-0.79*** (0.215)	-0.27*** (0.033)	-0.22*** (0.042)	-0.27*** (0.059)	-0.00 (0.047)
Network effect in Other colonies	-0.23* (0.126)	-0.12*** (0.020)	-0.11*** (0.021)	-0.07* (0.036)	0.01 (0.025)
Residuals in French Colonies	-0.17*** (0.044)	-0.01* (0.007)	0.00 (0.007)	-0.13*** (0.016)	-0.01 (0.009)
French Colonies	-16.50*** (3.246)	-3.44*** (0.493)	-3.81*** (0.663)	-7.46*** (0.884)	-0.71 (0.717)
All Controls					
Constant	114.69*** (5.672)	21.69*** (0.893)	21.94*** (1.053)	28.77*** (1.570)	10.61*** (1.234)
Year FE	yes	yes	yes	yes	yes
<b>Observations</b>	<b>1,916</b>	<b>2,064</b>	<b>2,058</b>	<b>2,020</b>	<b>2,058</b>
<b>R-squared</b>	<b>0.749</b>	<b>0.713</b>	<b>0.704</b>	<b>0.616</b>	<b>0.634</b>

Robust standard errors in parentheses

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1

Note: The institutions effects and network effects represent the fitted values of the European settlements explained by either as shown in equation 5. The residual is the unexplained part of the settlements. The standard gravity variables not reported in this table show that they are significant and exert the correct sign.

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# Appendix

Table A.1: The European Settlement as constructed from Huillery

District	Precolonial Empire	Current Country Name	European Settlement	District	Precolonial Empire	Current Country Name	European Settlement
Porto-Novo	Adjatche	benin	39.8	Nara	Kaarta	mali	22.5
Borgou	Borgu	benin	39.8	Nioro	Kaarta	mali	22.5
Abomey	Dahomey	benin	39.8	Sikasso	Kenedugu	mali	22.5
Allada	Dahomey	benin	39.8	Bandiagara	Macina	mali	22.5
Ouidah	Dahomey	benin	39.8	Gourma	Macina	mali	22.5
Tenkodogo	Tenkodogo	burkina faso	10.1	Mopti	Macina	mali	22.5
Ouagadougou	Wagadugu	burkina faso	10.1	Macina	Segu	mali	22.5
Ouahigouya	Yatenga	burkina faso	10.1	Segou	Segu	mali	22.5
Koudougou	Wagadugu	burkina faso	10.1	Adrar	Emirate of Adrar	mauritania	9.4
Bobodioulasso	Gwiriko	burkina faso	10.1	Brakna	Emirate of Brakna	mauritania	9.4
Kaya	Wagadugu	burkina faso	10.1	Trarza	Emirate of Trarza	mauritania	9.4
Dori	Liptako	burkina faso	10.1	Tagant	Emirate of Tagant	mauritania	9.4
Fada	Liptako	burkina faso	10.1	Goure	Kanem-Bornu	niger	7.4
Kindia	Fuuta Jaalo	guinea	70	NGuigmi	Kanem-Bornu	niger	7.4
Koumbia	Fuuta Jaalo	guinea	70	Dosso	Sokoto	niger	7.4
Labe	Fuuta Jaalo	guinea	70	Konny	Sokoto	niger	7.4
Mamou	Fuuta Jaalo	guinea	70	Tessaoua	Sokoto	niger	7.4
Pita	Fuuta Jaalo	guinea	70	Zinder	Sokoto	niger	7.4
Matam	Fuuta Toro	guinea	70	Hautegambie	Bundu	senegal	179
Podor	Fuuta Toro	guinea	70	Baol	Bawol	senegal	179
Kankan	Samori	guinea	70	Thies	Bawol	senegal	179
Kissidougou	Samori	guinea	70	Louga	Jolof	senegal	179
Kouroussa	Samori	guinea	70	Tivaouane	Kajoor	senegal	179
Bondoukou	Abron	ivory coast	11.7	Sinesaloum	Siin Salum	senegal	179
Assinie	Sanwi	ivory coast	11.7	Dagana	Waalo	senegal	179

Table A.2: The country disaggregation data

Regions as defined in the Tableau du Commerce general de la France		Countries Segregated	Colonizer	Year of Colonization	Year of independence	
Europe	Possessions anglaises de la mediterranee	Gibraltar	GBR	1700	2012	
		Cyprus	GBR	1878	1960	
		Malta	GBR	1802	1964	
Afrique	Egypte	Egypt	GBR	1882	1922	
	Etats Barbaresques	Regence De Tripoli	Libya	ITA	1910	1947
		Tunisie	Tunisia	FRA	1881	1956
		Maroc	Morocco	FRA	1912	1956
	Cote occidentale (Du maroc au cap de bonne esperance)	Western Sahara		ESP	1884	1965
		Mauritania		FRA	1895	1960
		Guinea Bissau		PRT	1800	1973
		Guinea		FRA	1890	1960
		Liberia		USA		1847
		Ivory Coast		FRA	1889	1960
		Togo		FRA	1918	1960
		Benin		FRA	1892	1960
		Cameroon		FRA	1918	1960
		Equatorial Guinea		ESP	1844	1968
		Gabon		FRA	1885	1960
		Congo		FRA	1903	1960
		Dr Of Congo		BEL	1885	1960
		Namibia		DEU	1884	1949
		Angola		PRT	1500	1975
Sao Tome And Principe			PRT	1500	1975	
Botswana		GBR	1885	1966		

Afrique	Possessions Anglaises	Partie Occidentale (Y Compris Le Gap De Bonne Esperance)	Sierra Leone	GBR	1808	1961		
			Gambia	GBR	1888	1965		
			Ghana	GBR	1874	1957		
			South Africa	GBR	1806	1910		
			Nigeria	GBR	1800	1914		
			Malawi	GBR	1891	1964		
		Partie Orientale (Y Compris L'ile Maurice)	Tanzania	GBR	1918	1961		
			Kenya	GBR	1888	1963		
			Uganda	GBR	1894	1962		
			Somalia	GBR	1884	1960		
			Sudan	GBR	1899	1960		
			Mauritius	GBR	1835	1968		
			Zimbabwe	GBR	1888	1965		
			Zambia	GBR	1899	1964		
Afrique	Autres Pays (Y Compris L'ile De Madagascar)	Mali	FRA	1892	1960			
		Niger	FRA	1922	1960			
		Chad	FRA	1900	1960			
		Burkina Fasso	FRA	1897	1960			
		Ethiopia						
		Mozambique	PRT	1500	1975			
		Madagascar	FRA	1883	1960			
		Central African Republic	FRA	1889	1960			
		Asie et Oceanie	Indes Comptoirs	Anglais	India	GBR	1857	1947
					Myanmar	GBR	1857	1948
Pakistan	GBR				1857	1947		
Bangladesh	GBR				1857	1971		
Hollandais (Java Et Sumatra)	Indonesia			PRT	1600	1945		
Philippines	Philippines			ESP	1521	1898		
Asie et Oceanie	Chine	China						

		Royaume De Siam	Thailand				
		Japon	Japan				
		Australie	Australia	GBR	1750	1901	
		Autres Iles De L'oceanie	Fiji	GBR	1700	1970	
			Solomon Islands	GBR	1893	1978	
			New Zealand	GBR	1840	1907	
Amerique	Septentrionale	Etats Unis	Ocean Atlantique	United States	GBR	1600	1776
			Ocean Pacifique				
		Mexique	Mexico	ESP	1650	1810	
Amerique	Centrale	Guatemala-CostaRica-Honduras	Guatemala	ESP	1519	1821	
			Costa Rica	ESP	1522	1821	
			Honduras	ESP	1520	1821	
		Nouvelle Grenade	Colombia	ESP	1525	1808	
Amerique	Meridionale	cote est	Venezuela	Venezuela	ESP	1490	1821
			Brezil	Brazil	PRT	1500	1822
			Uruguay (MonteVideo)	Uruguay	ESP	1500	1821
			Republique Argentine	Argentina	ESP	1500	1816
		cote ouest	Equateur	Ecuador	ESP	1500	1822
			Perou	Peru	ESP	1500	1821
			Bolivie	Bolivia	ESP	1500	1825
			Chili	Chile	ESP	1500	1810
Amerique	Antilles et possessions Europeennes	colonies anglaises	Canada	Canada	GBR	1763	1867
			Barbados	GBR	1650	1966	
			Bahamas	GBR	1650	1973	
		Autres Y Compris Les Antilles	Jamaica	GBR	1650	1962	
			Guyana	GBR	1700	1966	
			British Virgin Islands	GBR	1672	1967	

		Dominica	GBR	1805	1978
		Grenada	GBR	1763	1974
		Saint Lucia	GBR	1750	1979
		Trinidad And Tobago	GBR	1750	1962
		Antigua Et Barbuda	GBR	1632	1981
	Haiti Et Republique Dominicaine	Haiti	FRA	1697	1804
		Dominican Republic	ESP	1500	1865
	Colonies espagnoles	Cuba-Porto Ricco			
		Cuba	ESP	1492	1898
		Puerto Rico	ESP	1493	1898
		Saint Thomas			
		Virgin Islands (Us)	DNK	1600	1917
	Colonies Hollandaises	Aruba	PRT	1600	1986
		Suriname	PRT	1683	1975
Colonies Francaises	Algerie	Algeria	FRA	1830	1962
	Tunisie	Tunisia	FRA	1881	1956
	Maroc	Morocco	FRA	1912	1956
	Congo	Congo	FRA	1903	1960
	Senegal	Senegal	FRA	1850	1960
	Etablissement Francais De La Cote Occidentale D'afrique	Guinea	FRA	1890	1960
Colonies Francaises		Central African Republic	FRA	1889	1960
		Gabon	FRA	1885	1960
		Ivory Coast	FRA	1889	1960
		Benin	FRA	1892	1960
		Mali	FRA	1892	1960
		Mauritania	FRA	1895	1960
		Burkina Fasso	FRA	1897	1960

		Chad	FRA	1900	1960	
		Togo	FRA	1918	1960	
		Cameroon	FRA	1918	1960	
		Madagascar Et Dependences	Madagascar	FRA	1883	1960
		Mayotte	Madagascar	FRA	1883	1960
		Noisy-Be	Madagascar	FRA	1883	1960
		Ile De La Reunion	Reunion	FRA	1642	2012
		Cote Des Somalis	Djibouti	FRA	1896	1977
		Etablissement Francaise De L'inde	Laos	FRA	1880	1949
			Cambodia	FRA	1863	1953
		Indo-chine Francaise	Vietnam	FRA	1859	1945
	Etablissements Francais de l'oceanie	Nouvelle Caledonie	New Caledonia	FRA	1853	2012
		Autres Etablissements	French Polynesia	FRA	1842	2012
			New Hebrides (Vanuatu)	FRA	1880	1980
		Guyane Francaise	French Guiana	FRA	1814	2012
		Martinique	Martinique	FRA	1685	2012
		Guadeloupe	Guadeloupe	FRA	1635	2012
		Saint Pierre Et Miquelon Et Grande Peche	Saint Pierre Et Miquelon	FRA	1814	2012