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The political economy of imperial trade policies

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The political economy of imperial trade policies

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Abstract

During the 19th century, colonial empires expanded substantially, with at their heart flourishing trade relationships between the imperial power and its colonies. Notably, imperial powers adopted distinct commercial strategies: while some pursued an "open door" policy, others implemented preferential tariff regimes. This paper introduces the first comprehensive dataset documenting the trade policies of the major colonial empires from 1815 to 1960. We develop a theoretical framework that identifies three central determinants of these policies: inter–imperial competition, the progressive extension of the franchise in the imperial power and variation in imperial institutional structure. We then evaluate the model's predictions using the newly assembled dataset, and find robust empirical support for its key implications.

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Non-Technical Summary

During the nineteenth and early twentieth centuries, European colonial empires expanded dramatically, bringing large parts of Africa, Asia, and other regions under imperial control. Trade lay at the heart of these empires. Colonies supplied raw materials and agricultural products to the imperial powers, while importing manufactured goods in return. These commercial relationships helped shape patterns of global trade that continue to influence the world economy today.

Colonial empires did not adopt the same trade policies. Some granted their colonies privileged access to their markets through reduced or zero tariffs, while others treated colonial goods no differently from imports from the rest of the world. Even within the same empire, trade policies often changed over time. In some cases, colonies shared a common external tariff with the imperial power, creating arrangements similar to today's customs unions. In others, colonies retained greater autonomy over their trade policy, leading to arrangements that more closely resembled modern free trade agreements.

These differences raise an important question: why did some colonial empires adopt preferential trading arrangements while others did not? More broadly, what political and economic factors shaped the design of imperial trade policy? Surprisingly, despite extensive research on the economic consequences of colonialism, there has been relatively little systematic evidence on the trade policies adopted by empires and why they chose alternative arrangements.

This paper addresses this gap by combining new historical data with a political economy model that explains how political incentives shaped trade policy within colonial empires.

The first contribution of the paper is the construction of a comprehensive dataset documenting trade policies across the major colonial empires between 1815 and 1960. The dataset covers seven imperial powers—Britain, France, Germany, Italy, Japan, the Netherlands, and Portugal—and 127 colonies over nearly a century and a half. Drawing on archival material, official publications, and secondary sources, we identify whether colonies and imperial powers granted each other preferential tariff treatment and whether they operated under common external tariffs. We also compile information on trade flows, economic development, population, settlement patterns, political institutions, and the gradual expansion of voting rights within the imperial powers.

Building on these new data, the paper develops a framework to capture the main political forces that influenced imperial trade policy. We argue that three broad factors were particularly important.

First, competition between rival empires mattered. As colonial powers competed more intensely for markets and resources, they had stronger incentives to strengthen economic ties within their own empires. Granting preferential access to colonial markets could help protect producers from foreign competition while reinforcing the empire's commercial integration.

Second, domestic political change within the imperial powers played a central role. During the nineteenth century, voting rights were gradually extended to larger segments of the population. As electorates expanded, political power shifted away from wealthy property owners towards broader groups of voters with different economic interests. These political changes altered governments' incentives and influenced their willingness to support preferential trade arrangements. Our framework predicts that, as political participation widened, support for imperial trade preferences weakened.

Third, colonial empires differed substantially in the degree of political autonomy granted to their colonies. In some colonies, local governments had significant influence over economic policy, while in others trade policy remained tightly controlled by the imperial authorities. These institutional differences affected not only whether preferential trade agreements were adopted but also how they were designed. In particular, more decentralised empires were more likely to adopt arrangements involving common external tariffs, resembling modern customs unions.

The paper then evaluates these predictions using the newly assembled historical dataset. The empirical analysis examines both whether preferential trade arrangements were established and, when they were, whether they took the form of looser preferential agreements or more integrated customs unions.

The findings provide strong support for the theoretical framework. Empires facing greater competition from rival colonial powers were significantly more likely to adopt preferential trade arrangements with their colonies. At the same time, the gradual extension of voting rights in the imperial powers reduced the likelihood that such arrangements would be introduced or maintained. Finally, institutional differences across empires helped explain why some adopted deeper forms of trade integration than others.

Beyond explaining an important historical phenomenon, the paper contributes to several broader areas of research. It provides a unique historical dataset that will be valuable for future studies of colonialism, international trade, and political institutions. It also extends existing theories of trade agreements by showing how they apply to the distinctive setting of colonial empires, where political authority was highly unequal between imperial powers and colonies. Finally, while much previous research has examined the effects of colonial trade policies on trade flows and long-run economic development, this paper shifts attention to the political and institutional forces that determined why these policies emerged.

Understanding the origins of imperial trade policies sheds new light on the relationship between politics and international economic integration during one of the most transformative periods of global history. More broadly, the paper illustrates how changes in political representation, institutional design, and international competition can shape trade policy—a lesson that remains relevant for understanding the political economy of trade agreements today.

The Political Economy of Imperial Trade Policies*

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During the 19th century, colonial empires expanded substantially, with at their heart flourishing trade relationships between the imperial power and its colonies. Notably, imperial powers adopted distinct commercial strategies: while some pursued an "open door" policy, others implemented preferential tariff regimes. This paper introduces the first comprehensive dataset documenting the trade policies of the major colonial empires from 1815 to 1960. We develop a theoretical framework that identifies three central determinants of these policies: inter–imperial competition, the progressive extension of the franchise in the imperial power and variation in imperial institutional structure. We then evaluate the model's predictions using the newly assembled dataset, and find robust empirical support for its key implications.

Keywords: Preferential Trade; Colonial Empires.
JEL classification numbers: F10, F13, F54

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1 Introduction

Colonial empires of the industrial era expanded significantly during the nineteenth century, extending European control over much of Africa and Asia. Central to these empires were the trade linkages between the imperial power and its colonies, which further greatly expanded during the so-called "first globalization" era of the late 19th and early 20th century. Many imperial powers adopted preferential trade arrangements to encourage these within-empire trade flows. Yet, such policies were far from uniform: not all empires employed them, and even within the same empire, their scope and design could change over time. Moreover, there was variation in how the policies were implemented: in some cases – but not all – the colonial power forced upon the colony their own external tariff, creating arrangements that are akin to modern customs unions, whereas in others colonies set tariff policies that were different from those of the imperial power, resulting in settings more similar to modern free trade areas. These preferential trade arrangements are widely recognized as an important driver of the late 19th century surge in intra-empire trade (Mitchener and Weidenmier 2008), with long-lasting consequences for international trade patterns (Head et al. 2010).

Despite their importance for economic outcomes, there is little systematic evidence on the prevalence and shape of these preferential trade arrangements, and on the factors that determined their emergence. In this paper we attempt to fill this gap in the literature by making three contributions. First, we assemble a novel dataset on the preferential trade policies of the main post-industrial colonial powers and their main colonies over the period 1815–1960. Second, we build a theoretical model to investigate the role of political economy factors in explaining the emergence and characteristics of preferential trade arrangements within a colonial empire. Finally, we assess the prediction of our theoretical model using our dataset.

More specifically, our data collection spans 7 imperial powers (Britain, France, Germany, Italy, Japan, The Netherlands and Portugal) and 127 of their colonies, over a period of up to 145 years. For each imperial power-colony pair and each five-year interval, we draw on a large set of primary and secondary sources (both generalist and empire- or colony-specific) to construct two indicator variables for whether or not the imperial power granted preferential tariff treatment to most products it imported from the colonies, and vice-versa whether or not the colony granted preferential tariff treatment to most products it imported from the imperial power. When mutual tariff preferences were in place, we then also constructed a time–varying indicator variable for whether or not the imperial power and the colony adopted the same external tariffs, i.e. for whether or not the existing preferential trade arrangement was akin to a modern customs union or resembled instead a

free trade area. We enriched this novel dataset on colonial trade policies by incorporating extensive data on aggregate bilateral and total trade flows, GDP, and population for both the imperial power and the colony. Additionally, we collected data on the population share of settlers in the colony, as well as measures of industrialization and franchise expansion in the imperial power. While this second phase of data collection primarily drew from existing datasets, it also relied substantially on our own research in primary sources.

Over the period considered in our analysis several key factors have come to shape the global economy. On the one hand, while most imperial powers had some working form of representative democracy in place by 1860, the emergence of mass political movements during the latter part of the nineteenth century (Zahra, 2023) led to a dramatic change in the identity of the median voter, and thus in the trade policy that was preferred by the electorate. At the same time, as empires grew, competition among them intensified. Finally, colonial empires and individual colonies within them differed significantly in their institutional arrangements. In some colonies for example, settlers were able to retain greater control over the colonial economy and at times were more successful in negotiating some devolution of decision-making powers from the imperial power (Acemoglu et al. 2001). As a result, they had more scope to influence the trade policy pursued by the colonies towards both the imperial power and the rest of the world. In other contexts, settlers had very limited control over the local economy and/or on the policy making process and the imperial power remained in charge of most decisions.

To capture the working of these forces, we build a three-country, three-good political economy model. Two countries, the imperial power and the colony, interact to determine the tariff levels to be applied vis-a-vis each other and the rest of the world. The rest of the world implements instead a non-discriminatory (most favored nation, MFN) tariff. The underlying structure of the economy is the oligopolistic trade model that has been used in several earlier studies of regionalism (Krishna 1998; Ornelas 2005; Facchini et al. 2013, 2021). In each country, individuals derive income from labor and from their stake in the profits of oligopolistic firms. Profits generated by firms located in the imperial power exclusively accrue to local residents, who also capture a share of the profits generated by firms located in the colony. This assumption captures the idea that colonial powers typically had large investments in the colonies (but not the other way around). Importantly, ownership in the firm is unevenly distributed in the population. Building on this structure, we model the working of a representative democracy, in which the extension of the franchise leads to a decline in the median voter's ownership share in the oligopolistic firm. To capture the key role played by the imperial power - and differently from earlier studies of regionalism - we assume that the trade policy regime to be adopted by the empire (either a preferential trade agreement akin to a modern free trade area (FTA), a customs union

(CU) or an MFN arrangement) will be chosen only by the enfranchised citizens of the imperial power.

The choice of the trade policy regime is modeled as a four-stage game. In the first stage, the imperial power holds a series of pairwise votes to choose between the MFN regime, an FTA or a CU. In the second stage, enfranchised voters elect representatives who will set the tariff in the third stage. We capture the idea that an empire has a "centralized" structure by assuming that only the citizens of the imperial power are able to elect the tariff setter. If instead the empire is "decentralized", residents of the colony will also be able to elect a representative, who will then interact with that elected in the imperial power to determine the tariff policy. In the last stage of the game, firms compete on quantity, taking as given the trade policies set in the third stage.

The model delivers three sets of testable hypotheses. First, an imperial power is more likely to implement a preferential trade regime with one of its colonies, the greater is the competition it faces from other colonial empires, and the greater is the share of profits it receives from the sale of the goods produced in the colony. Intuitively, as the intensity of competition from the rest of the world increases, a preferential trade arrangement becomes more desirable as it helps shield producers based in the empire from foreign firms. In addition, as a preferential trade arrangement always increases the profits generated in the colony, the median voter in the imperial power will be more likely to support this trade policy the greater is the share of profits generated in the colony that are captured by the imperial power. Second, it is less likely to choose a preferential trade arrangement as the franchise is extended in the imperial power and the median voter becomes poorer. Intuitively, the adoption of a preferential trade arrangement increases profits, but if the share received by the median voter declines, the PTA formation might not be politically viable. Third, provided the conditions for the formation of preferential trade agreements are present, the imperial power is more likely to adopt a discriminatory trade policy regime with its colony, in which a common tariff is applied to the rest of the world (an arrangement akin to a modern CU) if the empire is decentralized. In addition, this trade policy choice is more likely to be adopted the greater the share of profits from the sale of goods produced in the colony that are received by the imperial power. To understand this result, note that when an empire is decentralized, the colony can influence the tariff policy that will be adopted through the election of a representative who will interact with that chosen by the imperial power to set the preferred tariff. As strategic delegation will occur in equilibrium, for a CU like arrangement to be supported, the interests of the representatives of the two countries need to be sufficiently aligned in the sense that the colonial power also captures a high enough share of profits generated in its colony. In this case, the voters in the imperial power delegate power to more protectionist representatives.

Still, the colonizer captures the bulk of the profits generated by high tariffs, while sharing the cost of the distortions induced by the tariffs with the colony. This result makes the formation of CUs more appealing to the colonial power compared to FTAs.

Our empirical analysis assesses these predictions using our newly assembled dataset. In line with our theoretical model, the decision on the type of trade regime to be adopted is described as a two-stage process. In the first stage, the imperial power decides whether to pursue a PTA or not. If the decision to pursue a PTA regime has been adopted, in the second stage a choice between an FTA or a CU is made. This basic idea is implemented using a probit model with sample selection (see Van de Ven and Van Praag 1981 and Facchini et al. 2021). The results of the empirical analysis lend broad support to the predictions of the model. In particular, we find that an imperial preference is more likely to emerge the greater is the competition faced by a colonial empire, and the greater is the share of profits generated in the colony that are captured by the imperial power. Conversely, imperial preference becomes less likely as the franchise expands in the imperial power. Regarding the choice of the PTA type, a common external tariff is more likely in decentralized empires and when the imperial power captures a larger share of the colony's profit income.

Our work contributes to three main strands of the literature. The first is the historical literature on the trade policies adopted by colonial empires in the XIX and XX centuries. Bairoch and Burke (1989) and US Tariff Commission (1922) provide a broad and yet detailed overview of colonial trade policies up to the end of WWI. A number of other studies have covered specific imperial powers over different time periods such as Fuchs (1905) and Russell (1947) for Britain, Girault (1916), Nogaro and Moye (1931) and Newbury (1968) for France, Henderson (1938) for Germany, Calderoni (1961) and Nicali and Favale (2004) for Italy, Beasley (1987) for Japan, Vanderbosh (1931) for the Netherlands and Clarence-Smith (1985) for Portugal. We build on this literature as well as on a large number of primary sources to construct the first systematic panel dataset on preferential trade policies in colonial empires that can be used for empirical analysis.

The second is the literature on the political economy of preferential trade agreements (Krishna 1998; Ornelas 2005, 2007). In particular we build on earlier work by Facchini et al. (2013, 2021), who have developed a theoretical framework to study the determinants of the formation of preferential trade agreements and the choice between free trade areas and customs unions. We extend that work to a colonial setting in which an imperial power and a colony might form a preferential trade arrangement. One distinctive feature of this setting is that it is the imperial power who decides whether such an arrangement is in place or not and of which type.

Finally, our work is also related to the literature that has studied the effects of colonial

empires on trade flows both in the short and long run (e.g. Mitchener and Weidenmier 2008, Head et al. 2010, Gokmen et al. 2020). Some of these studies have specifically considered the effects of colonial preferential trade policies and shown that they typically had a large impact on bilateral trade flows (Mitchener and Weidenmier 2008, De Bromhead et al. 2019). Unlike this literature, our focus is on the determinants of preferential trade policies, rather than on their consequences. Furthermore, we contribute additional time-varying data on the presence and evolution of preferential trading arrangements, both in the colonies and in the colonial powers, and for a much longer time period.

The remainder of the paper is organized as follows. Section 2 provides a historical overview of the seven empires in our dataset, as well as of economic and political evolutions in their imperial powers, over our sample period. Section 3 introduces our model of trade policy formation within an imperial power-colony pair. Section 4 first distills the model's main empirical predictions, and then provides a summary description of the data (with more details in Online Appendix C). Finally, Section 5 discusses our results, and Section 6 concludes.

2 Historical background

Our analysis examines the relationship between trade policies within colonial empires and the economic and political conditions in both the imperial powers and their colonies. In this section, we present a historical overview of the seven empires included in our dataset, along with the economic and political developments in their respective imperial powers over the sample period (1815–1960).

Our dataset comprises all the main colonial empires of the industrial era. Two of these, the British and the French, were long-standing entities which further expanded during our sample period. Two other empires, the Dutch and Portuguese, also had a long history — dating back to the fifteenth century — but unlike the British and French, did not experience significant expansion in the nineteenth and twentieth centuries. The remaining three empires were entirely new: two were established by recently unified sovereign nations — Germany and Italy, founded in 1871 and 1861, respectively — and the third was built by Japan, a country that had long maintained an isolationist stance. All of these empires started to decline, eventually collapsing (with a few exceptions) in the 1950s and 1960s.

The empires of the 19th and 20th century were different, from a commercial standpoint, from those that existed before, for at least three reasons. First, this was the period in which industrialization spread within Europe and some other parts of the world (such as Japan). As a result, trade between the imperial powers and the colonies increasingly focused on the exchange between primary commodities produced in the colonies (to be

used to feed large industrial labor forces, and as industrial inputs), and manufactures produced in the imperial powers. Indeed, the extent of an empire's expansion in this period tends to be positively related to the degree of industrialization in the imperial power (Bonfatti and Coşar 2022). Second, trade policy changed in the 19th century compared to the mercantilistic world of the 17th and 18th centuries. While in the earlier period the imperial powers often imposed monopolies on colonial trade (restricting it to specific nations or firms), in the 19th and 20th centuries trade restrictions were typically less severe, being implemented mostly through tariffs and quotas and often being dropped altogether (in favor of equal access of all countries to the markets of the empire). Finally, trade between the imperial powers and the colonies grew very fast in the 19th century (this era is known as the first globalization), driven not only by expanded manufacturing production, but also by a substantial decline in trade costs, itself a byproduct of new industrial inventions such as the steam engine.

The period under consideration was marked by significant political upheaval among the imperial powers. Before 1830, voting rights were restricted to a very small fraction of the population—typically significantly less than 5%—in all the imperial powers in our dataset. However, by 1925, universal male suffrage had been established in all these countries (although the rise of dictatorships in Italy and Germany during the interwar period temporarily rendered elections meaningless in these countries), and universal suffrage was the norm by 1946.

2.1 The rise of industrial empires (1815-1913)

This period was marked by unprecedented colonial expansion, driven by industrialization and economic and strategic competition among European powers. The clear industrial leader for most of the 19th century, Britain, also emerged as the dominant imperial power after 1815, as the three oldest European empires (the Portuguese, Spanish and Dutch) had lost most of their overseas possessions to revolution or war, and France had been defeated in the Napoleonic Wars (1799-1815).[1] British control over India expanded during the first half of the 19th century, culminating in direct control by the Crown from 1858. The Opium Wars (1839-1842, 1856-1860) with China solidified British influence in Asia, as did the acquisition of Singapore (1829), Aden (1837) and Hong Kong (1839). Meanwhile, British colonization of Australia, South Africa and Canada steadily expanded, though

[1]Spain lost her vast American empires with the exception of Cuba and Puerto Rico, and retained the Philippines. Portugal lost Brazil, and was left with her African colonies. The Dutch lost the Cape Colony and Ceylon to Britain during the Napoleonic Wars, but retained Indonesia and the smaller American colonies of Curacao and Suriname. France was left with four plantation colonies (Reunion, Martinique, Guadeloupe and French Guiana), trading depots in French India and Senegal, and the small Northwestern Atlantic colony of Saint-Pierre and Miquelon.

these colonies obtained substantial autonomy from the mother country between 1848 and 1872. France, recovering from the Napoleonic wars, started an aggressive colonial policy in North Africa, Southeast Asia, and the Pacific. The conquest of Algeria began in 1830 and that of Indochina in 1867, while New Caledonia was annexed in 1853. Territorial expansion accelerated in the 1880s, as old and new imperial powers scrambled for control of Sub-Saharan Africa. Germany and Italy, latecomers to colonialism due to their relatively recent unification, also sought imperial possessions as their economies began to rival those of the established industrial powers. Following the Berlin Conference of 1884-1885, nearly the entire African continent was divided between Britain, France, Germany, Italy and Belgium. During the same period, Japan emerged as a new imperial power, annexing Taiwan in 1895 and Korea in 1905 after its victory over China in the First Sino-Japanese War.

Between 1815 and 1913, colonial trade policies broadly evolved from strict mercantilist controls to more liberal trade arrangements, though imperial preferences regained ground from the 1880s onward.[2] At the beginning of the 19th century, colonial trade policies were still heavily influenced by mercantilist doctrines. The British Navigation Laws, for example, restricted trade within the British Empire to British ships, ensuring a monopoly over colonial commerce. Similarly, the Dutch maintained strict trade preferences for their own merchants in the Dutch East Indies. Strong preferential tariffs were also in place, and were strengthened in the first half of the 19th century. In Britain, a series of customs acts introduced between 1823 and 1846 increased the preference enjoyed by colonial products in the British market, while foreign products were often prohibited from entering the French colonies until the mid 19th century (in exchange for a strong and increasing preference granted to colonial products in the imperial power). Even the Dutch, a nation whose trading interests had led them to adopt liberal trade policies at home, maintained preferential tariffs in the colonies.

The mid-19th century saw the dismantling, under British leadership, of restrictive trade policies. Having pulled ahead of the rest of the world in terms of industrial production, Britain now demanded vast amounts of primary products to feed its labor force and to be used as inputs in its industries, and had little fear of competition by other manufacturers in colonial markets. Following the repeal of the Corn Laws in 1846 (which also implied the abolition of a preference to colonial wheat) and the Navigation Laws in 1849, all preferences to colonial products were abolished by 1860, while the colonies simultaneously abolished preferences for British products. Under Napoleon III (1852-1870), France dismantled the old colonial system, allowing foreign products to enter the colonies and

[2]The following account of the evolution of trade policies in 1815-1913 relies on Girault (1916) and US Tariff Commission (1922).

eliminating key preferences for the colonies in the imperial power. In 1872, the Dutch abolished any preference for Dutch products in the colonies. Only in the Portuguese empire mutual preferences (albeit reduced compared to the early 19th century) remained in place throughout this period.

Preferential colonial arrangements made a comeback in the late 19th century, led by the economic crisis of the 1880s and by increasing competition from rising industrial powers. France, for instance, moved towards a policy of "assimilation" between 1885 and 1892, whereby the most important colonies adopted the same external tariff as France, and intra-empire trade was made free. Meanwhile, Japan also adopted a policy of assimilation in some of its colonies (including Taiwan), while Portugal increased tariff differentials within its colonial empire. Even in the British Empire, increasing competition from Germany and the United States led to discussions on imperial preference in Britain in the early 20th century, and the British self-governing colonies, including Canada, Australia, and South Africa, unilaterally adopted preferential tariffs favoring British goods. Nevertheless, outside the Dominions, trade within the British empire remained non-preferential, as was also the case in the Dutch and newly-formed German Empires. Although some preferential arrangements were introduced in the nascent Italian empire, their scope and impact were limited. Finally, treaty obligations required all imperial powers to maintain equal access to trade within the Conventional Basin of the Congo (encompassing vast territories in Central and Southern Africa), and bound Japan not to assimilate Korea during this period.

The time period was also characterized by dramatic political change within the imperial powers. At its outset, only a very small share of the population — typically less than 5% — was eligible to vote across all imperial powers in our dataset. During the first half of the nineteenth century, the franchise was gradually extended in the UK (1832) and Portugal, and expanded significantly in France following the Revolution of 1848, which established universal male suffrage. Between 1848-1914 most imperial powers saw a further gradual extension of the franchise, progressively encompassing larger segments of the male population. Early reforms were introduced in Germany (1871) and the UK (1867, 1884), followed by Italy (1882, 1912) and the Netherlands (through a series of reforms culminating in the 1918 election). These developments made governments increasingly accountable to broad segments of society, whose economic interests did not always align with the trade policies favored by the elites (Zahra, 2023). Japan, however, was a latecomer to this process, with less than 10% of its citizens eligible to vote at the eve of WWI.

2.2 The inter-war period (1919-1938)

This period was a time of both colonial expansion and contraction, shaped by the aftermath of World War I and rising anti-colonial movements. Following the Treaty of Versailles (1919), the League of Nations established a mandate system that transferred control of former German colonies and parts of the Ottoman empire to the victorious Allied powers. Britain and France emerged as the primary beneficiaries of this arrangement, with Britain obtaining control of Palestine, Mesopotamia, German East Africa (renamed Tanganyika) and British Togoland, and France securing Syria, Lebanon, French Cameroon and French Togoland. Meanwhile, Japan took possession of German Pacific possessions, including the Marianas, Carolines, and Marshall Islands. Japanese expansion continued in the interwar period, culminating in the acquisition of Manchukuo from China (1931), and so did Italian expansion, with the invasion of Ethiopia in 1935. At the same time, the interwar period also witnessed challenges to colonial rule. On the one hand, following the Statute of Westminster of 1931, the British Dominions (Canada, South Africa, Australia and New Zealand) became fully independent. On the other hand, the Indian independence movement, led by Mahatma Gandhi, gained momentum through nonviolent protests in the 1920s and 1930s. Moreover, in Egypt, nationalist agitation led to partial independence in 1922, though Britain retained control over the Suez Canal.

World War I ended the liberal trade policies of the late 19th century, a shift that accelerated during the Great Depression as the imperial powers imposed high tariffs on one another, and reinforced imperial trade preferences. A series of new tariffs introduced by Britain and most of her colonies between 1915 and 1926 carried an imperial preference which, albeit modest, was a clear departure from previous policies (De Bromhead et al. 2019). In the early 1930s, prompted by declining industrial production, Britain dramatically increased tariffs on foreign products (mostly on manufactures, but also on primary goods), while simultaneously exempting colonial producers.[3] Following the Ottawa conference of 1932, the Dominions and colonies also strengthened the preference they accorded to British products. Similarly, France significantly raised its import tariffs in the early 1930s (Albers 2017). Given its policy of "assimilation" since 1892, this tariff hike automatically enhanced the preferential treatment of intra-imperial trade. Other imperial powers adopted similar policies in the inter-war period. In the Italian Empire, the 1921 tariff clearly designed a system of mutual preferences between the imperial power and the colonies (Nicali and Favale 2004). Japan turned its empire into a closed block in the 1920s and 1930s, with big benefits for its industrial growth and exports (Ayuso-Díaz

[3]Import quotas were also introduced, in this case, too, benefiting colonial over foreign producers (De Bromhead et al. 2019, p. 333). According to estimates in De Bromhead et al. (2019), these policies had a large impact in terms of re-orienting British imports in favor of the colonies.

and Tena-Junguito 2020). In Portugal, the 1926 military coup d'état led to a reversal of colonial policies towards the stricter mercantilism which had prevailed before 1910 (Clarence-Smith 1985, pp. 146-8).

In terms of political developments, by the end of WWI, all European imperial powers with the exception of Portugal had extended the suffrage to cover the entire male adult population. In Japan, universal male franchise was introduced in 1925. The period between WWI and WWII saw a gradual extension of the suffrage to women, first in Germany (1918) and in the Netherlands (1919), and subsequently in the UK (1928). At the same time, although during the interwar years the franchise was not formally changed in countries that experienced dictatorships – like Germany, Italy, Portugal and to an extent Japan – the role of elections in shaping public policies was much diminished in these countries.

2.3 The aftermath of World War II (1946-1960)

This period saw the rapid decline of European empires, driven by a combination of anti-colonial movements, shifting global power dynamics, and the emergence of new economic priorities in the imperial powers. Italy and Japan, like Germany, lost their empires due to defeat in war. In the remaining empires, anti-colonial movements, often led by charismatic leaders such as Mahatma Gandhi, Sukarno, Ho Chi Minh, and Kwame Nkrumah, gained momentum. These leaders challenged colonial rule through protests, negotiations, and sometimes armed resistance, leading to the independence of British India (1947), Indonesia (1949), French Indochina (1954), and Ghana (1957). This process was facilitated by the waning global influence of Britain and France, as demonstrated by their failed attempt to regain control of the Suez Canal in 1956, and by the fact that the United States and the Soviet Union, the two emerging superpowers, also supported decolonization. Moreover, by the 1950s, it had become evident that the most significant growth in the imperial powers' foreign trade and investment was occurring in the advanced markets of Europe and North America, rather than in the colonies. As a result, the economic justification for maintaining the empires weakened (Bonfatti and Coşar 2022). By 1960, the decolonization process was well underway, with a vast majority of colonies in Asia and Africa achieving independence before the mid 1960s.

The late 1940s and 1950s saw mostly a decline of the preferential trade policies of the interwar period and the foreign exchange controls introduced during World War II, though the speed of this process was different in the three remaining imperial powers. In the British Empire, by the late 1950s, only a very small share of colonies accorded any

tariff preference to British products.[4] In the French empire, the dismantling of preferential trade policies and foreign exchange controls was more gradual, and mainly due to foreign pressure (Fitzgerald 1988). Finally, in the Portuguese Empire, the mercantilistic policies of the 1930s were largely kept in place in the 1950s, to the benefit of the imperial power's balance of payments (Lains 1998).

In terms of domestic political evolutions within the imperial powers, this period witnessed the re-establishment of democracy in all the imperial powers in our sample with the exception of Portugal. Moreover, universal suffrage was adopted in France (1944), Italy and Japan (1946).

3 Model

In this section we develop a stylized theoretical model to study the determinants of trade regimes that have prevailed between the imperial powers and their colonies. To this end, we extend the standard oligopolistic model of trade that has been used in several analyses of regional integration (Krishna 1998, Freund 2000, Ornelas 2005, Ornelas 2007, Saggi 2006, Chen and Joshi 2010, Facchini et al. 2013 and Facchini et al. 2021). This setting allows us to investigate how the type of trade regime depends on (i) income inequality within the imperial powers; (ii) the degree of competition faced by a colonial empire from other imperial powers; (iii) the share of profits generated in colonies captured by the imperial power; (iv) the degree of autonomy enjoyed by each colony within an empire.

Our model considers a three-country, three-good economy, where countries C and I are the colony and the imperial power, respectively. In contrast, country F is an aggregate entity that stands for the rest of the world, including other colonial empires. Good 0 is a homogeneous good produced in all three countries, using only labor according to the identity production technology $X_0 = L_0$. This good is freely traded and serves as the numéraire, and, as a result, if it is produced in equilibrium, wages will be equal to 1. Moreover, trade in the numéraire guarantees that each country's overall balanced trade condition is satisfied.[5]

The manufactured good m and the agricultural good a are produced by oligopolistic firms. We assume that the imperial power has one firm producing m, whereas the colony has no active firm in this sector. The opposite is true instead for the agricultural good

[4]Foreign exchange controls within the Sterling Area (a group of colonies and former colonies who had pegged their currencies to Sterling following its coming off the Gold Standard in 1931) had been almost entirely eliminated by this time (Federation of British Industries 1958, pp. 15-19).

[5]Even if we impose an overall trade balance condition, bilateral trade could be unbalanced. For a similar approach, see Grossman and Helpman (1995).

a. This is in line with the idea that imperial powers enjoyed a comparative advantage in manufacturing, and colonies in the primary sector. We assume that country F has $n^m \geq 1$ firms producing good m, and one firm producing good a. In this setting, each firm competes with all other firms in each market. Thus, a higher n^m captures greater competitive pressure faced by the imperial power in all countries.

The oligopolistic goods (m and a) are produced using only labor according to a constant-returns-to-scale production function, which gives rise to a constant marginal cost c. Moreover, we assume oligopolistic firms to compete in quantities à la Cournot. Profits generated by the firm located in the imperial power accrue entirely to local residents, who also capture a share β of the profits generated by the firm located in the colony. This assumption is in line with the fact that colonial powers typically held substantial investments in the colonies, but not vice versa.

Trade policy takes the form of import tariffs. Let $t_{s,d}$ be the tariff vector applied by country $d \in \{C, F, I\}$ on imports from country $s \in \{C, F, I\}$, where $t_{d,d} = 0$. Country d's entire tariff matrix is then denoted by $\mathbf{t}_d = (t_{C,d}, t_{F,d}, t_{I,d})$, and the tariffs applied by the various countries are given by the stacked matrix: $\mathbf{t} = (\mathbf{t}_C, \mathbf{t}_F, \mathbf{t}_I)$. Note that different trade policy regimes impose different restrictions on these tariff matrices (in addition to the diagonal elements being zero by definition).[6] For example, if a Preferential Trade Agreement (PTA) between countries C and I is in place, then $t^m_{C,I} = t^m_{I,C} = t^a_{C,I} = t^a_{I,C} = 0$, implying that trade of all goods between C and I is free, and the tariffs applied on imports from country F can then be interpreted as the preference margin offered by the importer to its preferential partner. Furthermore, the PTA can take the form of a Free Trade Area (FTA) or a Customs Union (CU). Under the former, each member country can apply different tariffs vis á vis F, whereas in the case of a CU, C and I must set the same tariffs — the so-called common external tariff — on imports from F. Otherwise, if no PTA is in place, countries apply non-discriminatory, "Most Favored Nation" (MFN) tariffs on imports, implying that d levies the same tariffs on imports of the same good from both trading partners.[7] The tariffs chosen by F do not affect the equilibrium in C and I since markets are segmented in our model (Krishna, 1998). This feature allows us to focus on the equilibrium outcomes in countries C and I in the following analysis. We assume that country F always applies non-discriminatory tariffs on goods imported from C and I.[8]

The population in each country consists of a continuum of individuals of mass one. Each of them supplies one unit of labor but differs in the stake they own of the profitable

[6] We further rule out export subsidies.

[7] In the 19th century, this kind of non-discriminatory colonial trade regime was also known as "open door".

[8] The presence of market segmentation ensures that country F's incentives to set tariffs do not change across the trade policy regimes chosen by the colonial power. Thus, this assumption is inconsequential for our analysis.

oligopolistic firms. We denote by $\gamma_{s,l}$ the fraction of profits from the oligopolistic sector received by individual l in country s. We assume that the oligopolistic sector's distribution of profits is identical in country C and I. Since citizens have mass one, the share of profits received by the average citizen is equal to one ($\overline{\gamma} = 1$). Typical wealth distributions then imply that the share of profits received by the median voter γ^{med} is such that $\gamma^{med} \leqslant 1$ (Alesina and Rodrik, 1994). Following Dutt and Mitra (2002), γ^{med} can also be considered an inverse index of inequality — or an index of equality in the distribution of assets.

Preferences are identical across countries and individuals, and can be described by the following quasi-linear, quadratic, and additively separable, utility function:

$$u(x) = x^0 + \sum_{j \in \{a,m\}} u(x^j), \tag{1}$$

where $u(x^j) = Hx^j - (x^j)^2/2$ and $H > c$. This implies that the demand for good x^j takes the form $x^j = H - p^j$. The assumptions of quasi–linear utility and constant marginal costs ensure that markets are segmented.

The indirect utility of the imperial power I residents is given by:

$$\begin{aligned} v(\mathbf{t}, \gamma_{I,l}) = 1 &+ \gamma_{I,l} \left[\pi_I^m(\mathbf{t}) + \beta \pi_C^a(\mathbf{t})\right] \\ &+ t_{F,I}^m n^m x_{F,I}^m(\mathbf{t}_I) + t_{F,I}^a x_{F,I}^a(\mathbf{t}_I) + t_{C,I}^a x_{C,I}^a(\mathbf{t}_I) \\ &+ \left[u(x_I^m(\mathbf{t}_I)) - p_I^m(\mathbf{t}_I) x_I^m(\mathbf{t}_I)\right] + \left[u(x_I^a(\mathbf{t}_I)) - p_I^a(\mathbf{t}_I) x_I^a(\mathbf{t}_I)\right], \end{aligned} \tag{2}$$

where $\pi_I^m(\mathbf{t}) = \sum_d \left[p_d^m - c - t_{I,d}^m\right] x_{I,d}^m = \sum_d \pi_{I,d}^m(\mathbf{t})$ are the profits generated by the domestic firm, whereas $\pi_C^a(\mathbf{t})$ are those accruing to the firm based in the colony. Moreover, in the case of industry m (a), total sales in I are described by $x_I^m = n^m x_{F,I}^m + x_{I,I}^m$ ($x_I^a = x_{F,I}^a + x_{C,I}^a$). The first line represents labor income and profits accruing to individual l. The second line represents tariff revenues collected by country I on imports from different sources, which are lump-sum rebated to the citizens. The last line describes consumer surplus. The indirect utility of an individual based in country C is defined analogously, with $1 - \beta$ replacing β.[9]

Trade policy setting is modeled as a four-stage game. In stages one through three, the imperial power chooses the trade policy regime, and tariffs are determined under conditions spelled out below. In the fourth stage, firms compete in quantities, taking the trade policy as given. More specifically, in the first stage, the imperial power holds a sequence of votes to choose between three possible trade policy regimes with its colonies (MFN, FTA or CU). In the second stage, representatives are elected who will, in the

[9]Remember also that individuals based in the colony do not own a share of the manufacturing firm based in the imperial power.

third stage, choose the tariffs. We consider two alternative scenarios. In the first, the representative elected in the imperial power chooses the policy for both the imperial power and the colony ("centralized empire"). In the second scenario, we allow for the possibility that both the imperial power and the colony choose a representative who will subsequently determine the tariffs for each country ("decentralized empire"). In both cases, tariffs must be set in accordance with the trade policy regime chosen in the first stage of the game. Note that in the decentralized empire case, the first-stage choice of trade regime is still made by the imperial power.[10]

We solve the model backwards, starting from stage four to which we turn to now, before analyzing the policy-setting stages in the following section.

In the fourth stage of the model, firms play Cournot; that is, they choose the quantity to be sold in each market, taking as given the tariff matrix $\mathbf{t}$, and the quantity sold by other firms serving the same market.

Focusing on the imperial power I (a similar analysis applies to C), the equilibrium quantities and prices for the manufactured good m are given by:

$$\begin{aligned} x^m_{I,I} &= \frac{H - c + n^m t^m_{F,I}}{n^m + 2}, \\ x^m_{F,I} &= \frac{H - c - 2t^m_{F,I}}{n^m + 2}, \\ p^m_I &= \frac{H + n^m t^m_{F,I} + (n^m + 1)c}{n^m + 2}, \end{aligned} \tag{3}$$

whereas for the agricultural sector we have:

$$\begin{aligned} x^a_{C,I} &= \frac{H - c - 2t^a_{C,I} + t^a_{F,I}}{3}, \\ x^a_{F,I} &= \frac{H - c + t^a_{C,I} - 2t^a_{F,I}}{3}, \\ p^a_I &= \frac{H + t^a_{C,I} + t^a_{F,I} + 2c}{3}, \end{aligned} \tag{4}$$

Note that the quantity of the manufactured product m sold by the domestic producer in I increases with the tariff applied on imports, whereas the opposite is true for the quantity imported from F. On the other hand, for the agricultural good the quantity imported from each origin country is decreasing in the tariff applied to that country, and increasing

[10]We are thus assuming that the colony enjoys partial independence, within a policy framework set by the imperial power. The case of the so-called British "Dominions" (Australia, Canada, Newfoundland, New Zealand and South Africa) provides a real-world counterpart to such an arrangement. For example, "The Australian states achieved a large measure of tariff autonomy in 1850 [...]. From the 1850s until Federation, each of the Australian colonies was an independent political entity that was entitled to determine its own import duties. While British colonial authorities had no role in setting the structure or height of these tariffs, they did require them to be non-discriminatory and uniform across all trading partners." (Irwin 2006).

in the tariff applied to the other.[11]

We next characterize the policy-setting stages of the game (stages one-three). We begin in the next section by considering the case of a centralized empire, and we then turn to the case of a decentralized empire in Section 3.2

3.1 Centralized empire

In this section, we study the formation of trade policy in a centralized empire. Under this institutional arrangement, the representative elected by voters of the imperial power in the second stage of the game selects tariffs for both the imperial power and the colony in the third stage. Thus, citizens of the imperial power determine the choice of trade policy regime (in stage 1), and the identity of the representative (in stage 2) who will choose the tariffs (in stage 3) for the entire empire.

3.1.1 Third stage

In the centralized empire setting, the population of the imperial power (country I) elects a representative who will choose the tariffs to be applied on imports by countries I and C. As standard in the literature, we assume that the representative selects tariffs to maximize their own welfare, given the tariffs chosen by rest of the world (F). The representative's problem in the third stage of the game is thus given by:

$$\max_{\mathbf{t}_C, \mathbf{t}_I} v\left(\mathbf{t}, \widehat{\gamma}_I\right) \tag{5}$$

where $\widehat{\gamma}_I$ is the representative's share of profits.

We start by focusing on the trade policy regimes in which applied tariffs can differ between the imperial power and the colony, namely the non-discriminatory (MFN) regime and the FTA case. In the MFN regime, the representative's choice is subject to constraints:

$$t^j_{C,I} = t^j_{F,I} \equiv t^j_I, \qquad t^j_{I,C} = t^j_{F,C} \equiv t^j_C, \qquad j \in \{m, a\}.$$

Assuming that an interior solution exists, the first order conditions for t^m_I and t^a_I in

[11] As it is clear from expressions (3) and (4), the price of goods in I depends only on the trade policies adopted by that country and does not depend on the trade policy adopted by any other country, because markets are segmented. Moreover, note that these expressions do not depend directly on parameters β. This happens since the demand for oligopolistic goods is not affected by income effects given the assumption of quasilinearity in consumer preferences.

problem (5) are given by:

$$
\begin{aligned}
-\frac{\partial p_I^m}{\partial t_I^m} x_I^m + n^m x_{F,I}^m + n^m t_I^m \frac{\partial x_{F,I}^m}{\partial t_I^m} + \widehat{\gamma}_I \frac{\partial \pi_{I,I}^m}{\partial t_I^m} = 0, \\
-\frac{\partial p_I^a}{\partial t_I^a} x_I^a + \left(x_{F,I}^a + x_{C,I}^a\right) + t_I^a \left(\frac{\partial x_{F,I}^a}{\partial t_I^a} + \frac{\partial x_{C,I}^a}{\partial t_I^a}\right) + \beta \widehat{\gamma}_I \frac{\partial \pi_{C,I}^a}{\partial t_I^a} = 0.
\end{aligned} \tag{6}
$$

In other words, the representative balances the cost of tariffs in terms of foregone consumer surplus (the first term on the left-hand side) against changes in tariff revenues (second and third terms) and profits (fourth term).

Using equilibrium prices and quantities from (3) and (4) we obtain

$$
\begin{aligned}
t_I^{MFN,m} &= \frac{(H-c)(1+2\widehat{\gamma}_I)}{3n^m + 8 - 2n^m \widehat{\gamma}_I}, \\
t_I^{MFN,a} &= \frac{(H-c)(1-\beta\widehat{\gamma}_I)}{4 - \beta\widehat{\gamma}_I}.
\end{aligned} \tag{7}
$$

Expressions (7) indicate that the tariffs applied by the imperial power depend positively on the share of profits received by the representative if the good is produced in the colonial power (good m). At the same time, they are negatively related to the share of profits if the good is produced by the colony (goods a). Intuitively, a tariff on manufactures imported from F increases profits in the representative's manufacturing activities at home, whereas a tariff on the agricultural product imported from C decreases profits in the representative's activities in the colonies.

Turning to colonial tariffs, the first-order conditions for t_C^m and t_C^a in problem (5) are given by:

$$
\begin{aligned}
\widehat{\gamma}_I \frac{\partial \pi_{I,C}^m}{\partial t_C^m} &= 0, \\
\beta \widehat{\gamma}_I \frac{\partial \pi_{C,C}^a}{\partial t_C^a} &= 0.
\end{aligned}
$$

Intuitively, when selecting colonial tariffs, the representative elected in the imperial power only cares about their effect on colonial profits. Colonial tariffs thus are:

$$
\begin{aligned}
t_C^{MFN,m} &= 0, \\
t_C^{MFN,a} &= \frac{H-c}{2}.
\end{aligned} \tag{8}
$$

The colonial tariff on manufactures is set to zero by the representative elected by the imperial power – a value which is lower than that set for the imperial power itself. This is because, in an MFN regime, tariffs apply equally to imports from all sources, including the imperial power. It follows that tariffs do not benefit imports from the imperial power relative to those from the rest of the world, and the representative has therefore no reason

to erect them. This result is in line with the historical experience of empires, such as the British and Dutch ones, whose colonies in the 19th century pursued tariff policies that were both non-discriminatory and liberal. On the contrary, the imperial power's representative benefits from higher (in fact, prohibitive) tariffs applied by the colony in sector a as long as it receives a positive share of profits (i.e., $\beta > 0$), since the colonial power does not produce this good.[12]

We can now turn to the FTA case. In this case, the representative's choice is subject to constraints:

$$t^j_{C,I} = t^j_{I,C} = 0, \qquad j \in \{m, a\}.$$

The interior solutions for the tariffs applied by the imperial power is given by:

$$\begin{aligned} t^{FTA,m}_{F,I} &= \frac{(H-c)(1+2\widehat{\gamma}_I)}{3n^m + 8 - 2n^m\widehat{\gamma}_I}, \\ t^{FTA,a}_{F,I} &= \frac{(H-c)(1+2\beta\widehat{\gamma}_I)}{11 - 2\beta\widehat{\gamma}_I}. \end{aligned} \tag{9}$$

Note that – for a given identity of the representative ($\hat{\gamma}_I$) – the tariff applied on the manufactured good produced in the imperial power is the same as in the MFN regime. At the same time, the tariff applied on the agricultural good produced in the colony can be higher or lower than in the MFN case (though it is always lower for $\beta = 0$). This is because of the opposite role of β (the share of colonial profits received by the colonial power) in shaping the two tariffs. While in the MFN case a higher β means that the representative wants to keep the tariff low so as to allow easier access of colonial products to the imperial power's market, in the FTA case they want a higher tariff to protect colonial products from foreign competition.[13]

Likewise, the equilibrium FTA tariffs applied by the colony are given by:

$$t^{FTA,m}_{F,C} = t^{FTA,a}_{F,C} = \frac{H-c}{2}. \tag{10}$$

Note that the tariff applied by the colony on the manufactured good is higher than in the MFN case and – in fact it is prohibitive – and also higher than the tariff applied in the imperial power. Intuitively, a higher tariff now allows the representative to protect the colonial market for the manufactured good from foreign competition. This result captures the experience of many historical empires, including the British one after WWI, which adopted discriminatory tariffs in the colonies with the goal of protecting manufactures

[12]If the colonizer's representative does not receive a positive share of profits generated in the colony (i.e., $\beta = 0$), then we assume that the colony applies a free trade policy.

[13]This result is in contrast to the decline in the external tariff generated by preferential access granted to the partner country found in Saggi (2006) and Ornelas (2007). Therefore, in our model, this result known as "tariff complementarity" does not necessarily apply.

produced in the imperial power from foreign competition.

We can now study the formation of a CU between the imperial power and its colony. This trade policy regime is similar to the FTA, with the additional requirement that the external tariffs applied on a given good must be the same in the two countries. Formally, the representative solves problem (5), subject to constraints

$$t^j_{C,I} = t^j_{I,C} = 0, \qquad t^j_{F,I} = t^j_{F,C} \equiv t^j, \qquad j \in \{m, a\}.$$

The resulting tariffs are given by:

$$\begin{aligned} t^{CU,m} &= \frac{(H-c)(1+4\widehat{\gamma}_I)}{3n^m + 8 - 4n^m\widehat{\gamma}_I}, \\ t^{CU,a} &= \frac{(H-c)(1+4\beta\widehat{\gamma}_I)}{11 - 4\beta\widehat{\gamma}_I}. \end{aligned} \tag{11}$$

Note that – as in the FTA case – common external tariffs are positively related to the share of profits received by the representative. A comparison between expressions (9) and (11) reveals that the common external tariff on good m tends to be higher than the tariff applied by the imperial power under an FTA, but lower than the tariff applied by the colony. Intuitively, when setting the common external tariff, the representative cares about manufacturing profits realized in the colony as well as in the imperial power. This induces them to set a higher tariff compared to the tariff set on imports by the colonial power under the FTA. At the same time, the common external tariff is lower than the prohibitive colonial tariff chosen under an FTA since the representative also cares about consumer surplus in the imperial power. A similar analysis applies to the determination of the common external tariffs applied on the good exported by the colony to the colonizer (goods a).

3.1.2 Second stage

Who will voters choose as their representative? (Facchini et al., 2013) show that the problem is single–dimensional and that each voter's indirect utility function satisfies the single-crossing property. As a result, the median voter theorem can be applied, and the choice of the representative is the solution to the following problem:

$$\max_{\widehat{\gamma}_I} v\left(\mathbf{t}\left(\widehat{\gamma}_I\right), \gamma^{med}\right) \tag{12}$$

In the centralized empire, the representative elected in the imperial power chooses the tariffs to be applied to all products, both in the imperial power and in the colony. As a result, the median voter will maximize their welfare by electing herself as the representative

setting the policy, i.e. $\widehat{\gamma}_I = \gamma^{med}$.[14] The equilibrium tariff policies under the three regimes can then be obtained by simply replacing $\widehat{\gamma}_I$ with γ^{med} in equations (7) — (11).

To summarize the equilibrium tariff choices (equations 7–11), an FTA has no effect on the market for manufactures in the imperial power or on the market for the agricultural good in the colony, since the corresponding tariffs are identical under the FTA and MFN regimes. By contrast, an FTA benefits the imperial power by granting it exclusive access to the colonial market for manufactures: whereas under MFN the colony follows an open-door policy, under an FTA its market is effectively reserved for producers from the imperial power. These gains, however, come at the cost of granting preferential access to the colony's agricultural exports in the imperial market. The magnitude of this cost depends on β. The larger is β, the greater is the share of colonial profits accruing to the imperial power and, therefore, the lower is the cost of favoring colonial producers. As a result, the imperial power chooses a higher external tariff on agricultural imports from the rest of the world under an FTA (equation 9), thereby widening the preference margin enjoyed by the colony. Finally, under a CU, the common external tariff is set at an intermediate level between the tariffs chosen by the imperial power and the colony under an FTA. Relative to an FTA, it is therefore higher than the imperial power's external tariff but lower than the colony's external tariff.

3.1.3 First Stage

We can now turn to the solution of the first stage of the game, in which the imperial power chooses the trade policy regime, using a sequence of referenda. In the first, the citizenry decides between the non-discriminatory, MFN regime (status quo) and an FTA. In the second, it chooses instead between the trade regime emerging from the first referendum and a CU.[15] For a PTA to be politically viable, the imperial country's median voter welfare must increase as the economy moves from the non-discriminatory regime to the PTA. To understand the role of the various forces at play, it is useful to decompose the change in the median voter's indirect utility as follows:

$$\Delta v\left(\mathbf{t}^{MFN}, \mathbf{t}^{PTA}, \gamma^{med}\right) = \underbrace{\Delta v\left(\mathbf{t}^{MFN}, \mathbf{t}^{PTA}, \overline{\gamma}_I\right)}_{\text{National welfare}} - \underbrace{\left(1-\gamma^{med}\right)}_{\text{Inequality}}\underbrace{\Delta\pi_I\left(\mathbf{t}^{MFN}, \mathbf{t}^{PTA}\right)}_{\text{Profits}} \quad (13)$$

where "Δ" represents the change from the MFN regime to a PTA and $v(\mathbf{t}, \overline{\gamma})$, is the indirect utility of the average voter, which we choose as our measure of national welfare.

[14] As we will show in section 3.2, in the case of the decentralized empire strategic delegation could instead occur.

[15] Alternatively, we could start by considering the decision between the non-discriminatory arrangement and a CU and then, in the second stage, pit against each other the winner and the FTA. The two sequences deliver the same outcome.

Since the profits of member countries' firms increase if they are granted preferential access under a PTA, equation (13) highlights that a PTA is politically viable only if it increases the imperial power's national welfare. Otherwise, the utility of the median voter would necessarily decline following a switch from MFN to a PTA. It also shows how profits are less important in determining the political desirability of the PTA, compared to their appeal from the point of view of national welfare, as the median voter receives a lower share of profits than the average.

As only welfare-enhancing preferential agreements are politically viable, we start by characterizing the welfare effects of different trade policy regimes. This strategy requires us to use the equilibrium tariffs, (equations 7-11), along with equilibrium quantities and prices (equations 3 and 4), to assess the value of the average voter's indirect utility function under the different regimes. Our findings are summarized in the following:

Proposition 1 *An FTA always increases the imperial power's welfare relative to the other trade regimes. The increase in the imperial power's welfare associated with moving from the status quo MFN regime to an FTA increases in the share of colonial profits it captures (β) and with the size of production in the rest of the world (n^m).*

The first part of the proposition highlights that the formation of an FTA is welfare-enhancing relative to the non-discriminatory MFN regime for our entire parameter space (i.e., regardless of the values of γ^{med}, n^m and β). This is because, as Facchini et al. (2013) showed in a similar setting, the increase in profits due to the exchange of preferential market access more than compensates for potential losses in consumer surplus and/or tariff revenues. This is because, as Facchini et al. (2013) showed in a similar setting, the gains from preferential access in export markets outweigh the potential losses associated with granting preferential access to imports from the partner country. In our setting, this result is strengthened by the fact that – in the centralized empire case we are considering – the imperial power chooses the extent of preferential access granted also by the colony. As shown in equations 10, this leads the imperial power, who does not care about colonial consumer surplus or tariff revenues, to set prohibitive tariffs on foreign manufactures, thus generating very high profits for its own manufacturing firms. Moreover, for any $\beta > 0$ the imperial power benefits also from increases in the profits accruing to firms based in the colonies. Note that an FTA also dominates a CU. This is because in the centralized empire setting the imperial power chooses the external tariffs for both itself and the colony. In this context, the CU only adds a constraint in the choice problem, namely that the tariffs applied by the countries must be the same.

The second part of Proposition 1 reports the results of two comparative statics exercises. First, it shows that as the share of colonial profits captured by the imperial power increases,

so does the attractiveness of an FTA relative to the MFN. This is intuitive as a greater share of the increase in profits is now accruing to the imperial power. Second, the attractiveness of an FTA also increases in the extent of foreign competition (greater n^m). This result is entirely driven by the effects of an FTA on the colony's market for manufactures: as foreign competition intensifies, the gains to imperial producers from adopting a prohibitive colonial tariff in the FTA case (as opposed to a zero tariff in the MFN case) increase. Online Appendix A provides the technical details of the proofs of our propositions.[16]

Since – as implied by the decomposition in equation (13) – welfare enhancement is a necessary condition for the political viability of a PTA, from Proposition 1 we learn that a CU will never emerge in equilibrium. On the other hand, an FTA might emerge, as long as the median voter's share of profits is sufficiently high, that is $(1 - \gamma^{med})$ is sufficiently low. This result is formally stated in the following:

Proposition 2 *A CU will never emerge as a political equilibrium. On the other hand, an FTA will be preferred by the imperial power's median voter over the non-discriminatory MFN regime if their share of profits exceeds a critical value* $\breve{\gamma}^{med}_{FTA,MFN}(\beta, n^m)$. *This threshold decreases in the share of colonial profits captured by the imperial power* (β)*, and in the size of production in the rest of the world* (n^m).

The first part of Proposition 2 identifies a threshold which the median voter's share of profits must exceed for an FTA to be politically viable. The second part reports the findings of two comparative statics exercises. First, as the imperial power's colonial profit share increases, the threshold decreases, expanding the parameter space in which an FTA is politically viable. Intuitively, the weight attached to profits by the median voter increases and as an FTA always increases profits, this effect makes an FTA more attractive. This effect dominates over other possible changes triggered by changes in β. Second, the critical threshold decreases as the intensity of foreign competition increases. This is also intuitive, since from the median voter's point of view the formation of an FTA only increases the profits made by the imperial power's manufacturers in the colonial market. As argued above, this increase is higher, the stronger is the foreign competition.

3.2 Decentralized Colonial Empire

Thus far we have assumed that the imperial power fully controls the colony's trade policy. In practice, especially during the period examined in our empirical analysis, colonies exercised varying degrees of influence over their tariffs — ranging from informal

[16]Note that, in the imperial power, a change in n^m has instead the same effect on the external tariff in the FTA and MFN regimes.

consultation with local interests, to elected bodies with partial authority over tariff setting. Yet, the choice of the trade policy "regime" (e.g. an MFN or a PTA) generally remained within the exclusive discretion of the imperial power.

To capture these institutional arrangements, this section analyzes a decentralized empire, in which elected representatives from both the colony and the imperial power jointly determine the two jurisdictions' tariffs. We continue to assume that the trade–regime choice in the first stage is made solely by the imperial power. As before, we solve the game by backward induction.

The main difference relative to the centralized empire is that a CU can now emerge in equilibrium. Since the colony is free to set its own external tariffs, an FTA no longer delivers coordinated protection across the empire; a CU partly restores that coordination, and this can make it attractive to voters in the imperial power. As we show below, however, the value of coordination must be weighed against a strategic delegation problem that a CU brings about. From now on, for simplicity, we focus on the case $n^m = 1$.

3.2.1 Third stage

In a decentralized empire, the population of each country elects a representative who chooses the tariffs to be applied on imports by their own country. As in the centralized case, we assume that each representative selects tariffs to maximize their own welfare, given the tariffs chosen by the rest of the world (F) and, now, by the other member of the empire. The representatives' problems in the third stage of the game are thus given by:

$$\max_{\mathbf{t}_I} v\left(\mathbf{t}, \widehat{\gamma}_I\right) \tag{14}$$

$$\max_{\mathbf{t}_C} v\left(\mathbf{t}, \widehat{\gamma}_C\right) \tag{15}$$

where $\widehat{\gamma}_I$ and $\widehat{\gamma}_C$ are the representatives' shares of profits, and each representative's choice is subject to the constraints imposed by the trade policy regime chosen in the first stage of the game.

We start again by focusing on the trade policy regimes in which applied tariffs can differ between the imperial power and the colony, namely the non-discriminatory (MFN) regime and the FTA case. In the MFN regime, the representatives' choices are subject to the constraints $t^j_{C,I} = t^j_{F,I} \equiv t^j_I$ and $t^j_{I,C} = t^j_{F,C} \equiv t^j_C$, for $j \in \{m, a\}$. The only substantial difference between problems (14)-(15) and problem (5) is that the representative of the imperial power now selects tariffs only for their own country, since colonial tariffs are set by the colony's representative. It follows that the tariffs of the imperial power are the

same as in the centralized case (eq. 7), whereas the tariffs of the colony are now given by:

$$\begin{aligned} t_C^{MFN,m} &= \frac{H-c}{4}, \\ t_C^{MFN,a} &= \frac{(H-c)\left[1+2(1-\beta)\widehat{\gamma}_C\right]}{11-2(1-\beta)\widehat{\gamma}_C}. \end{aligned} \tag{16}$$

Compared to the centralized empire case, when the tariffs on manufactured and agricultural goods were, respectively, zero and prohibitive, the colony imposes a higher tariff on the former and a lower one on the latter. This is because, in the centralized empire case colonial consumer surplus and tariff revenues were not taken into account, whereas they are now.

We can now turn to the FTA case. In this case, the representatives' choices are subject to the constraints $t_{C,I}^j = t_{I,C}^j = 0$, for $j \in \{m, a\}$. Once again, the tariffs chosen by the imperial power's representative are the same as in the centralized empire (eq. 9), whereas those chosen by the colony's representative are now given by:

$$\begin{aligned} t_{F,C}^{FTA,m} &= \frac{H-c}{11}, \\ t_{F,C}^{FTA,a} &= \frac{(H-c)\left[1+2(1-\beta)\widehat{\gamma}_C\right]}{11-2(1-\beta)\widehat{\gamma}_C}. \end{aligned} \tag{17}$$

Both tariffs are now lower than in the centralized empire case, when they were both prohibitive, as colonial consumer surplus and tariff revenues are now taken into account when they are set. Note also that – for a given identity of the representative ($\widehat{\gamma}_C$) – the tariff applied by the colony on the agricultural good is the same as in the MFN regime, since the colony does not import this good from the imperial power. This mirrors the analogous result for the tariff applied by the imperial power on the manufactured good.

The problem describing the choice of the common external tariffs in the case of a customs union differs from that of the centralized empire, as now both the imperial power and the colony will be actively engaged in the determination of the common tariff policy. In particular, the elected representatives will solve the following problem:

$$\max_{\mathbf{t}_C, \mathbf{t}_I} v\left(\mathbf{t}, \widehat{\gamma}_I\right) + v\left(\mathbf{t}, \widehat{\gamma}_C\right) \tag{18}$$

subject to the constraint that $\mathbf{t}_C = \mathbf{t}_I$. The solution is given by:

$$\begin{aligned} t^{CU,m} &= \frac{(H-c)(1+2\widehat{\gamma}_I)}{11-2\widehat{\gamma}_I}, \\ t^{CU,a} &= \frac{(H-c)\left[1+2\left(\beta\widehat{\gamma}_I+(1-\beta)\widehat{\gamma}_C\right)\right]}{11-2\left(\beta\widehat{\gamma}_I+(1-\beta)\widehat{\gamma}_C\right)}. \end{aligned} \tag{19}$$

Expressions (19) indicate that the common external tariff applied on the manufactured good (m), which is produced by the imperial power, depends only on the identity of that country's representative. This follows because the colonial representative holds no stake in the manufacturing firm. By contrast, the tariff on the agricultural good a is shaped by the identities of both representatives, since each captures a share of the profits generated by the agricultural producer.

It is instructive to compare the common external tariffs (19) with the FTA tariffs, for a given pair of representatives. Relative to an FTA, each representative obtains more protection in the sector in which they hold a stake: the tariff protecting manufactures now extends to the colonial market (where, under an FTA, the colony's representative would set the much lower tariff in 17), and the tariff protecting agriculture now extends to the imperial market. Each representative obtains this, however, at the cost of accepting more protection in the sector the other cares about.[17]

3.2.2 Second stage

We again draw on the results in Facchini et al. (2013), which show that the median voter is pivotal in selecting representatives. Consequently, in each country the chosen representative is the one that maximizes the median voter's welfare. Under both the non-discriminatory (MFN) regime and the FTA, external tariffs are set non-cooperatively by the two countries. As a result, the median voter in each country will again choose to appoint a representative who shares their own preferences—effectively, the median voter appoints "themselves" as the policy setter. The equilibrium tariffs therefore follow directly by substituting $\widehat{\gamma}_C = \gamma^{med}$ in equations (16)-(17).

The case of a CU differs substantially from the other two trade regimes. Because the common external tariffs are now determined jointly by the two representatives — who solve problem (18) — the median voter of each country has an incentive to be represented by someone other than herself: by electing a representative with a larger stake in profits — in effect, a tougher negotiator — she can tilt the common external tariffs in favor of the firm whose profits she shares in. We refer to this as the *strategic delegation* problem. Online Appendix A.2 characterizes the delegation equilibrium formally; here we describe its logic and its consequences.

[17]The role of joint decision-making can be appreciated by considering the tariffs that would emerge if a representative holding the combined stakes ($\widehat{\gamma}_I$ in manufacturing, $\beta\widehat{\gamma}_I + (1-\beta)\widehat{\gamma}_C$ in agriculture) could set the common external tariffs unilaterally, taking into account profits earned in both union markets but consumer surplus and tariff revenue in one country only. These tariffs are given by (19) with each stake multiplied by *four* rather than two, e.g. $t^{CU,m} = (H-c)(1+4\widehat{\gamma}_I)/(11-4\widehat{\gamma}_I)$, and are higher than the corresponding FTA tariffs, since the representative now considers the effect of protection on profits earned in the other country as well. The joint solution (19) moderates protection relative to this benchmark, because it also internalizes the other country's consumer surplus and tariff revenue.

Strategic delegation arises because common external tariffs protect profits earned throughout the empire, whereas the associated costs—foregone consumer surplus and tariff revenue—are borne only in the domestic market. Consider the manufacturing tariff. From the perspective of the median voter of the imperial power, a higher common external tariff raises the profits of the domestic firm's sales in both the imperial and colonial markets, while the consumption cost falls only on residents of the imperial power. The median voter knows that, if she appointed herself as representative, the emerging CET on manufactures would be lower than her ideal one. This is because the CET would be negotiated with the representative of the colony, which does not take manufacturing profits into account (but only tariff revenues and consumer surplus in C). She therefore strategically delegates to a representative with a larger stake in profits, who bargains more aggressively for protection. The same logic applies to the colony with respect to the agricultural tariff, although the incentive to delegate is weaker because the representative of the imperial power already internalizes a share β of the colonial firm's profits. Strategic delegation by the colony raises the common external tariff on agricultural goods above the level preferred by the median voter of the imperial power. This is the key cost of a customs union from her perspective and helps explain why she may instead prefer a free trade area. Since it is the median voter of the imperial power who ultimately decides whether to adopt a customs union or a free trade area, this strategic response by the colony directly affects the equilibrium choice of trade regime.

How severe the problem of strategic delegation is depends on how well the interests of the two countries are aligned, and thus on β. When β is high, imperial residents capture most of the profits generated in the colony, so the imperial representative already demands ample protection for the agricultural sector; the colonial median voter then has little reason to add protection of her own, and delegation loses its bite. Indeed, Online Appendix A.2 shows that for $\beta \geq 1/2$ the colony's median voter elects a representative with no stake in profits at all, and the resulting common external tariffs are exactly the ones the imperial median voter prefers: strategic delegation imposes no distortion on her. When β is low, by contrast, the interests of the two electorates are misaligned — protection of agriculture mostly benefits colonial residents, while protection of manufacturing benefits imperial ones only — and each side escalates in the attempt to tilt the common tariffs its way. In the extreme case in which $\beta = 0$, each median voter elects a representative twice as protectionist as herself.

To summarize, the equilibrium tariffs chosen by the imperial power under the MFN and FTA regimes are unchanged relative to the centralized empire, since the imperial power retains the same tariff-setting authority in both institutional arrangements. The key difference concerns the colony, which under decentralization acquires tariff autonomy.

As a result, the colonial representative sets a positive tariff on manufactures under the MFN regime (rather than free trade), while under an FTA the tariff on foreign manufactures is lower than in the centralized case. For agricultural goods, because the colonial representative also values domestic tariff revenue and consumer surplus, tariffs are no longer prohibitive under either regime. A CU is potentially attractive to the median voter in the imperial power because it delivers a higher level of protection in the colony than an FTA. However, equilibrium tariffs under a CU are shaped by strategic delegation and therefore depend on the value of β. When $\beta \geq 1/2$, the preferences of the two median voters are sufficiently aligned, and the equilibrium common external tariffs coincide with those preferred by the median voter in the imperial power. When $\beta < 1/2$, the two electorates are misaligned, and the median voter in the imperial power must accept a common external tariff on agricultural goods that is higher than her preferred level. For sufficiently low values of β, the common external tariff can become very high (and possibly even prohibitive). This makes a customs union particularly costly from the perspective of the imperial power's median voter, and as we show below, can make it less attractive than an FTA.

3.2.3 First Stage

We can now turn to the solution of the first stage of the game, in which the imperial power's median voter chooses the trade policy regime. The discussion in the previous section highlights the trade-off she faces. Relative to an FTA, a CU restores the coordination of external tariffs across the empire, which is valuable to her; but it also triggers the strategic delegation problem, which pushes the common external tariff on the agricultural good above the levels she would like. When the delegation problem is severe enough, a CU may fail to emerge despite its coordination advantages.

To solve the first stage, we evaluate the median voter's indirect utility (2) under the three regimes, at the equilibrium tariffs derived above.[18] The comparison is summarized in the following proposition:

Proposition 3 *In the decentralized empire (with $n^m = 1$): (i) a preferential trade agreement is politically viable if and only if the share of profits received by the median voter exceeds a critical value $\tilde{\gamma}^{med}(\beta)$, which is strictly decreasing in β; (ii) whenever a preferential trade agreement is viable, it takes the form of a customs union for all values of β above a threshold $\bar{\beta} < 1$; for $\beta < \bar{\beta}$, an FTA emerges for an intermediate range of values of γ^{med}, and this range shrinks — while the set of values of γ^{med} for which a CU emerges expands — as β increases.*

[18] See equations (16) and (17), together with the corresponding tariffs of the imperial power, and, for the CU, the delegation equilibrium characterized in Online Appendix A.2.

Proof. The proof is computational. The median voter's value of each regime is an explicit closed-form function of (β, γ^{med}), obtained by substituting the equilibrium tariffs into (2); the only non-rational object is the equilibrium delegation weight under a CU for $\beta < 1/2$, the root of a cubic equation (Online Appendix A.2), which is computed by bisection to machine precision. Figure 1 reports the median voter's complete ranking of the three regimes on $(\gamma^{med}, \beta) \in [0,1]^2$, with region boundaries computed by bisection on the value-function differences. The viability threshold $\tilde{\gamma}^{med}(\beta)$ falls monotonically from 0.33 at $\beta = 0$ to 0.14 at $\beta = 1$. The FTA is the preferred PTA exactly when $\beta < \beta^*(\gamma^{med})$, where the boundary β^* is single-peaked in γ^{med} with maximum $\bar{\beta} = 0.134$; hence, for a given $\beta < \bar{\beta}$, the FTA emerges on an intermediate interval of values of γ^{med}. Finally, the median voter's valuation gap between the CU and the FTA is increasing in β at every point of the grid, so the set of values of γ^{med} for which the customs union emerges expands monotonically as β rises. ■

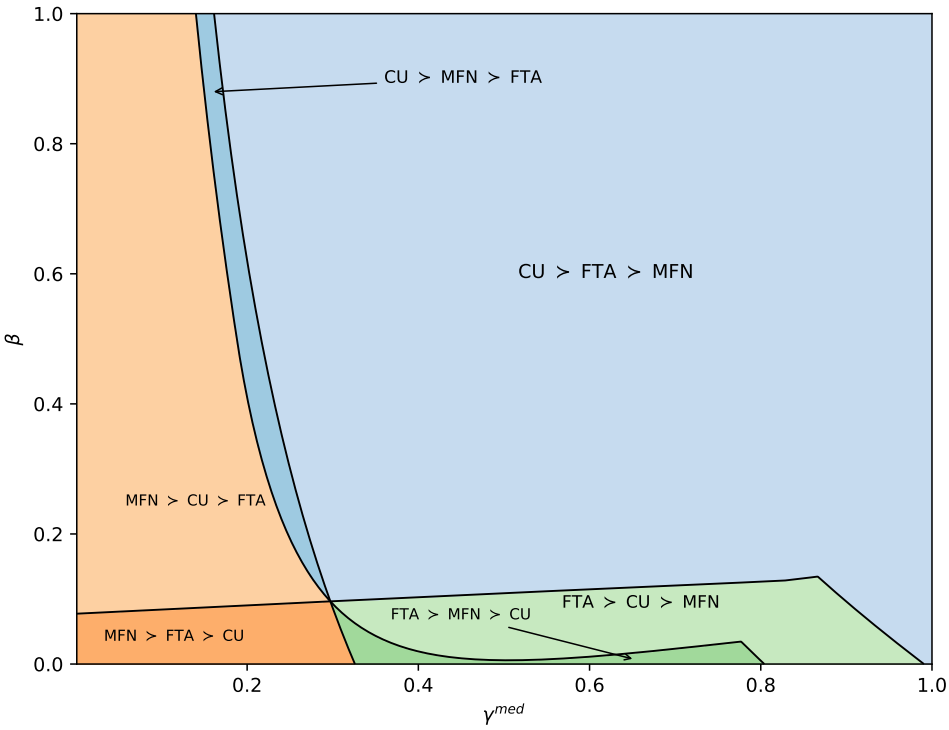


FIGURE 1. **The median voter's ranking of trade regimes, decentralized empire.** The parameter γ^{med} captures the share of profits owned by the median voter of the imperial power, whereas β is the share of colonial profits owned by citizens of the imperial power. In each region, the three trade policy regimes are listed in decreasing order of the imperial power's median voter welfare. Parameters: $n^m = 1$. Region boundaries are computed by bisection on the closed-form value functions (see Online Appendix A.2 for details).

Proposition 3 delivers two messages. First, the structure of PTA formation is the same as in the centralized empire (Proposition 2): a preferential agreement emerges only if the

median voter's share of profits is sufficiently high, and the required threshold falls with β. The intuition is also the same. What makes a PTA attractive to the median voter is the protection of profits it delivers: for the imperial firm, preferential access to the colonial market for manufactures; for the colonial firm — of which imperial residents own a share β — preferential access to the imperial market. The larger the median voter's stake in these profits, the more she values the agreement. A PTA is thus politically viable only when inequality is sufficiently low (high γ^{med}), and a higher β — by raising the median voter's stake in the profits that the agreement protects — lowers the required threshold.

Second, conditional on a PTA being viable, the choice between a CU and an FTA is governed by the strategic delegation problem. For moderate and high values of β, the interests of the two countries are sufficiently aligned that delegation is mild — indeed, for $\beta \geq 1/2$ it imposes no distortion at all on the imperial median voter (Online Appendix A.2) — and the coordination advantage prevails: the PTA takes the form of a CU. For low values of β, instead, the misalignment of interests makes delegation severe: the common external tariff on the agricultural good is inflated far beyond the imperial median voter's preferred level, and she prefers to give up tariff coordination altogether, opting for an FTA. A CU is therefore less likely to emerge, relative to an FTA, the lower is the share of colonial profits captured by the imperial power.[19]

4 Main predictions and Data

We can summarize the main predictions of the theoretical analysis in a number of hypotheses that can be empirically assessed using the novel dataset we have assembled. The predictions involve, on the one hand, the factors that affect the decision by the imperial power to establish a preferential trade regime with its colonies. On the other, if the empire adopts a preference, the second set of predictions involves the choice between a regime in which external tariffs differ between the imperial power and the colony and one in which instead they are coordinated.

4.1 Empirical hypotheses

Proposition 2 highlights that the greater is the competition faced by the imperial power for its products in the world market, the more likely it is to set up a preferential trade arrangement with its colony. The same occurs the larger is the share of profits generated in the colony that accrue to citizens of the imperial power. Turning to the role of the income distribution, our analysis indicates that no preferential trade arrangement will be

[19]Note, in Figure 1, that the FTA region closes as $\gamma^{med} \to 1$: when inequality is very low, the coordination advantage of a CU marginally prevails even at $\beta = 0$.

adopted if income inequality is too high. We can summarize these results in the following hypotheses.

Hypothesis 1 *An imperial power is more likely to adopt a discriminatory trade policy regime with its colony the greater is the competition it faces from other colonial empires, and the greater is the share of profits received by the imperial power on goods produced in the colony.*

Hypothesis 2 *If income inequality in the imperial power is sufficiently low, the imperial power will choose a discriminatory trade policy regime with its colony, rather than the MFN regime.*

Proposition 3 highlights that an imperial power might adopt a customs union-like arrangement with its colony if colonial representatives can negotiate external tariffs with representatives of the imperial power (i.e., we are in a decentralized empire setting) and the income inequality in the imperial power is sufficiently low so that preferential arrangements are viable. In addition, we have also shown that this type of arrangement is more likely to be preferred over a free-trade agreement, the larger the share of profits generated in the colony accruing to citizens of the imperial power. This result can be summarized as follows:

Hypothesis 3 *If income inequality is sufficiently low, a CU-like arrangement is more likely to emerge in a decentralized empire. Furthermore, this regime is more likely to be adopted, the greater the share of profits received by the imperial power on goods produced in the colony.*

4.2 Dataset

We have assembled a dyadic dataset spanning seven colonial powers: France, Germany, Italy, Japan, the Netherlands, Portugal, and the United Kingdom, and 127 of their colonies spanning the period 1815-1960. Table 1 summarizes the time frame for which data are available for each empire.

We follow the literature and retrieve information at five-year intervals as trade policy regimes tend to change only infrequently. We start by collecting information on the nature of trade relationships within each empire. In particular, for each colonizer-colony pair and year, we have constructed indicator variables for whether the colony granted preferential access to imports from the colonial power, and vice-versa. In our baseline analysis, we adopt a "strict" definition according to which a colonizer-colony pair had a preferential trade arrangement (PTA) in a given year if both these indicators are equal to one. In robustness checks, we relax this requirement and consider an alternative, "weaker" definition, whereby a preferential trade arrangement is in place even if only the indicator variable for the imperial power equals one (and the other was missing).

Table 1. Time frames of empires in our sample

Imperial power	Time frame
France	1815–1960
Germany	1884–1916
Italy	1882–1960
Japan	1895–1946
Netherlands	1815–1954
Portugal	1815–1960
United Kingdom	1815–1960

Furthermore, we collect information on whether external trade policies, i.e., towards countries outside of the empire, were coordinated between the colonies and the imperial power. The numbers at the bottom of Panel A in Table 2 indicate that approximately 34% of the observations (416/1232) in our sample are represented by pairs in which a preferential trade arrangement was in place. Besides, the figures at the bottom of Panel B suggest that about 27% (113/416) of them were akin to CUs, whereas the remainder were akin to FTAs. This figure resonates well with modern preferential arrangements, where FTAs are more common than CUs.

Figure 2 (panel A) illustrates the evolution of preferential trading arrangements within empires over time, providing quantitative evidence to support the historical discussion in Section 2. As we can see, the share of colonizer-colony pairs that were in preferential trade arrangements follows a U-shaped pattern over time. While a majority of country pairs had PTAs in place before 1850 and after 1930, in the period comprised between the second half of the nineteenth century and WWI, only a minority of countries were engaged in a PTA. The prevalence of MFN-like arrangements accompanied by comparatively low tariff levels during this period has been referred to as the "first globalization".

Panel B of Figure 2 illustrates instead a breakdown of PTAs depending on whether external trade policies were coordinated or not. While customs union-like arrangements were virtually unknown before the end of the nineteenth century, they became an important type of PTA in the decades leading up to World War I, when relatively few colonial empires had PTAs in place. Among those who did (i.e., France and Japan), coordination of tariff policies was quite widespread. Their role declined significantly in the early 1920s, when preferential trading arrangements once again became more common, and remained pretty stable until the end of our sample period.

In Figures A1–A4 we provide greater details of the extension of and the trade policies prevailing in the seven colonial empires considered in our analysis for four representative years (1840, 1870, 1900, and 1930), illustrating also the geographical coverage of our dataset. Several patterns emerge. First, colonial empires expand greatly in the second half

Figure 2. Evolution of PTA/CU over time

(a) Share of colonies in a PTA regime (b) Share of colonies in a CU regime | PTA=1

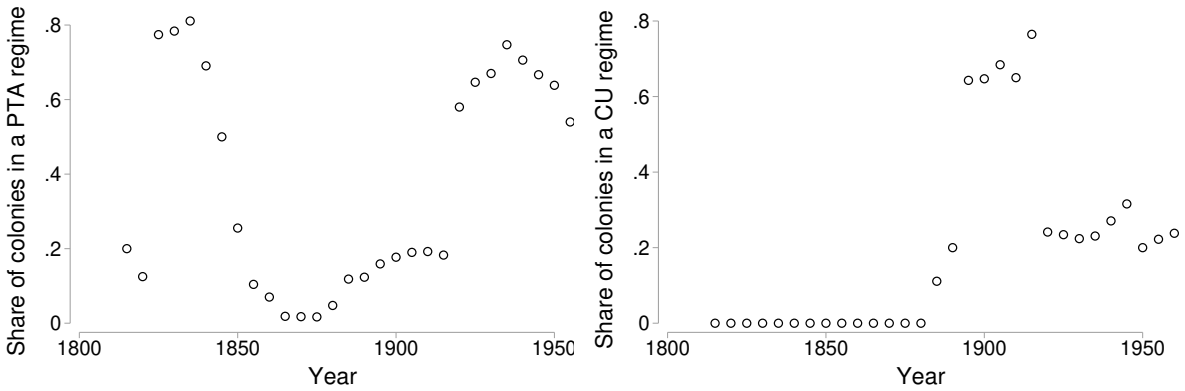


Figure notes: Figure (A) shows the share of colonies in a PTA regime, given PTA information is available. Figure (B) shows the share of colonies in a customs union conditional on being in a PTA regime.

of the XIX century, following the so-called Scramble for Africa. Second, the increasingly non-discriminatory nature of colonial trade policy in the central part of our period was mostly driven by the British Empire, which adopted free trade for almost all of its colonies. However, British policies were by no means unique. The Dutch, German and Italian empires were also non-discriminatory in this period. Third, other empires (French, Japanese, and Portuguese) pursued instead mostly discriminatory trade policies throughout the entire period considered in our analysis. Finally, even empires which were non-discriminatory started to pursue preferential trading arrangements after 1930.[20]

Building on the forces highlighted in our theoretical model, our main explanatory variables are the share of income captured by the median voter in the imperial power (γ_I^{med}), with higher values indicating a greater equality of the income distribution (Dutt and Mitra 2002), the degree of competition faced by an imperial power in selling manufactures to its colonies (n^m), the degree of autonomy enjoyed by the colony in setting its trade policy, and the share of colonial profits that accrues to investors based in the imperial power (β).

To measure changes in the income of the median voter, we exploit the fact that, in the period covered by our analysis, all imperial powers witnessed a dramatic extension of the franchise. While initially only very rich individuals were allowed to vote, these restrictions were progressively relaxed by decreasing the wealth and/or income requirements to access the ballot box. Thus, as the franchise was extended, the income of the median voter decreased. The evolution of the franchise is illustrated in Figure 3, where we plot the share of the electorate as a fraction of the enfranchised age group for each of the seven imperial

[20]For example, all Italian colonies had a preferential trade arrangement in place by 1930 and British India adopted one by 1935.

powers considered in the analysis. A share less than one indicates that voting restrictions, based for example on wealth or income, allow only a fraction of the enfranchised age group to vote.[21] This measure (i.e. the total franchise as defined by Aidt et al. (2006)) is standard in the literature and is taken from the variable v2x_suffr in VDEM database.[22]

At the beginning of the period considered in our analysis less than 5% of the population was allowed to vote in all imperial powers, and the median voter was typically very rich. Over time the franchise was slowly extended – first in the UK and Portugal and then in France where after the 1848 revolution universal male suffrage was established. By 1914 all European imperial powers had extended the suffrage to cover the entire male adult population – with the exception of Portugal, and Japan introduced male universal suffrage only in 1925.

The period between WWI and WWII saw a gradual extension of the suffrage to women, first in Germany and in the Netherlands, and subsequently in the UK. At the same time, several imperial powers experienced dictatorships in this period (Germany, Italy, Portugal and to an extent Japan), significantly reducing the role of elections in shaping public policies. After WWII, with democracy restored, France, Italy and Japan extended the franchise to female citizens, while the same occurred in Portugal only after the Carnation Revolution of 1974.[23]

We adopt two measures of the degree of competition faced by an imperial power in selling manufactures to its colonies. The first is the inverse of the GDP of the imperial power relative to that of its main competitors. Clearly, the higher its value, the greater the size of the competitors of an imperial power relative to its own size.[24] The second is the share of the competitors of an imperial power in total world manufacturing production, as estimated by Bairoch (1982). While the two measures capture different facets of competition among industrial empires, their level and evolution over time deliver similar messages. As shown in Figure 4, for the entire time period considered in our analysis, the United Kingdom is the leading power among imperial countries (i.e., it faces a lower degree of competition), and British supremacy is built upon its dominance in the manufacturing sector. Only Germany, for a brief period just before WWI, enjoyed a similar competitive position. While the UK's dominance began to decline clearly in the post-WWI period,

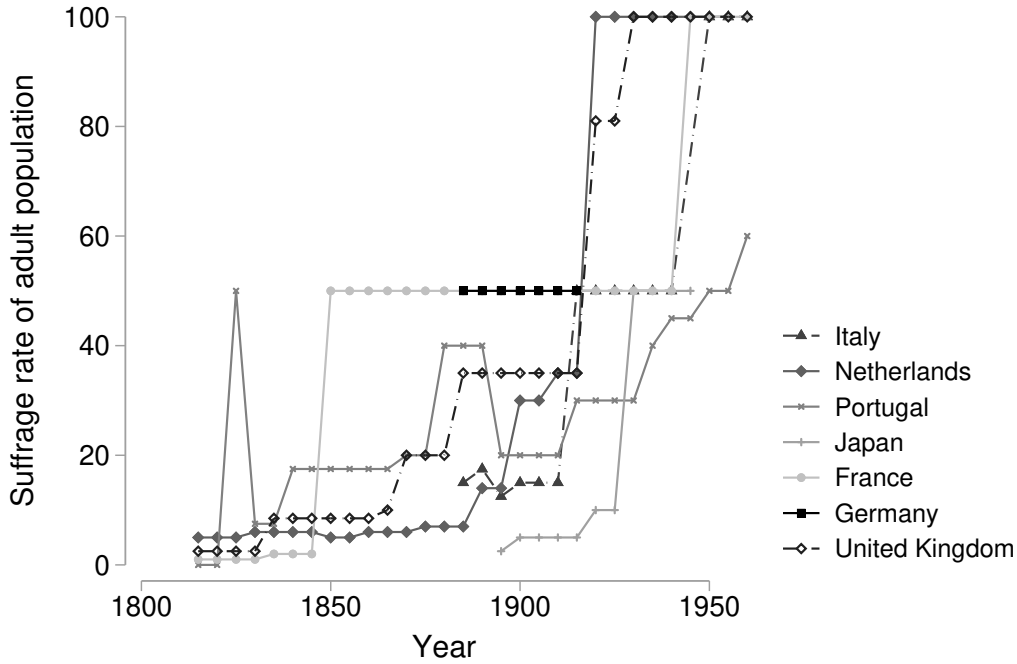
[21]For example, consider a situation in which individuals aged 21 or above are allowed to vote only if they have an income above a certain threshold $\overline{y}$. Then, the share of enfranchised voters is given by the number of individuals over 21 and with an income higher than $\overline{y}$, divided by the total number of individuals over 21.

[22]See Online Appendix C.3 for more details on the construction of this variable.

[23]We notice that removing the few observations for imperial powers experiencing dictatorships does not alter our baseline results, and we comment on this point below.

[24]The full list of the main manufacturing producers in our sample period includes all the main overseas imperial powers of this period, namely Belgium, France, Germany, Italy, the United States, the United Kingdom, Spain, Japan, the Netherlands, and Portugal.

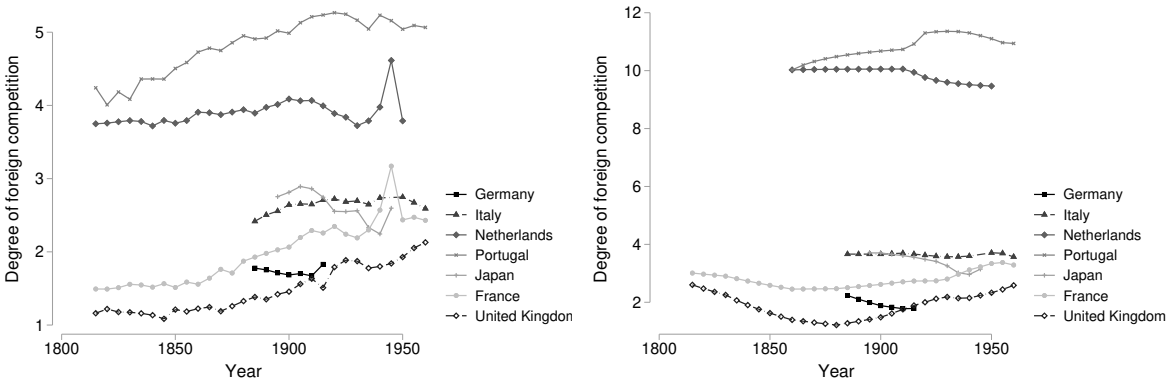
Figure 3. Suffrage expansion over time by imperial power



Notes: This graph plots the suffrage rate every five years by imperial power.

its position was never threatened by France, Italy, or Japan. Finally, the Dutch, and a fortiori, the Portuguese empires faced much greater competition than the other empires throughout this period, in line with the secular decline in their importance for the global economy.

Figure 4. Evolution of foreign competition faced by imperial powers



Notes: The left panel presents the measure based on GDP, whereas the right one that based on the share in global manufacturing from Bairoch and Burke (1989)

To measure the degree of policy autonomy enjoyed by a colony, we would ideally need to observe whether or not the colony had representative institutions: by aggregating the policy preferences of the citizenry, and by putting pressure on the colonial executive to

adhere to such preferences, these institutions could be expected to result in greater policy autonomy. Unfortunately, information on the existence and quality of representative institutions is missing for many of the colonies and years included in our sample. To bypass this problem, we build on Acemoglu et al. (2001), who have argued that colonies with a higher share of settlers were more likely to establish representative institutions, given that settlers, compared to natives, were better positioned to negotiate the devolution of policy-making from the imperial power. We thus proxy for policy autonomy using the share of settlers of European descent - or of Japanese descent in the case of Japanese colonies. These data have been obtained from various sources, including McEvedy et al. (1978), Acemoglu et al. (2001), Angeles (2007), Easterly and Levine (2016) and El Kallab and Terra (2018).[25] To support this strategy, we validate our proxy by comparing it with measures of sovereignty provided by the VDEM database for a subset of the colonies included in our analysis starting in 1900.[26]

Our data indicate that even within colonial empires, there was significant heterogeneity in the share of settlers. For example, in 1910 estimates indicate that over 13% of the population resident in Algeria was of French origin, and indeed the colony was seen as an important destination for migrant French farmers – the famous "pieds noirs" – who transformed it at the end of the nineteenth century into a major producer and exporter of wine. Other French colonies instead experienced much lower inflows of Europeans. For example in Senegal, another important French West African outpost, European settlers made up only 1.2% of the total population, and were mainly involved in colonial administration, commerce, and the promotion of the Christian faith. Interestingly, when it comes to the trade policy arrangements of these colonies, Algeria became part of a customs union with France at the end of the nineteenth century, whereas at the same time Senegal became part of an arrangement that instead resembled a free trade area.

One final parameter in the model is the share of profits generated in the colony that accrues to investors based in the imperial power. To the best of our knowledge, there is no systematic historical data on this. As a result, we proxy for this parameter using information on the share of all colonial exports directed to the imperial power. This is based on the logic that direct investors based in the imperial power – because of their connections with businesses back home – were particularly likely to facilitate exports from the colony to the imperial power.[27]

[25]See Online Appendix C.5 for more details.

[26]Within this subsample, the share of settlers is strongly correlated with VDEM's measures of sovereignty in domestic (v2svdomaut) and international policies (v2svinlaut). The correlation rates are, respectively, 0.708 and 0.703.

[27]Reassuringly, using data from Kentor and Boswell (2003), we find a high correlation between the imperial power's share of FDI in the colony and the share of exports of the colonies going to the mother country. For more details, see Online Appendix C.2.

Building on the existing literature (Baier and Bergstrand, 2004; Egger and Larch, 2008), we also account for a series of additional factors that have been shown to play an important role in the formation of PTAs and in the choice of their type. In particular, we control for measures of (dis)similarity in total economic size (SizeAsym) and per capita GDP (DKL, and its square SQDKL), and geographical proximity (NATURAL). See Online Appendix C for details on variable definitions and sources.

Table 2. Descriptive Statistics

Variable	Mean	Std Dev.	Mean	Std Dev.
Panel A: PTA choice	Full sample		PTA=1	
Main variables of interest:				
VOT (Suffrage)	0.50	(0.33)	0.69	(0.32)
COMP (Competition - GDP)	1.74	(0.60)	2.12	(0.77)
Beta (ShareProfitColonizer)	0.47	(0.28)	0.50	(0.29)
Controls:				
TradeContent	0.01	(0.02)	0.01	(0.03)
SizeAsym (Asymmetry of GDP)	-5.50	(2.01)	-5.08	(1.97)
DKL (DifferenceGDPPC)	1.23	(0.85)	1.07	(0.83)
SQDKL (DifferenceGDPPC2)	2.24	(2.37)	1.83	(2.19)
NATURAL (Log(1/distance))	-8.78	(0.57)	-8.70	(0.64)
Observations:	1232		416	
Panel B: PTA type	PTA=1		CU=1	
Main variables of interest:				
Beta (ShareProfitColonizer)	0.50	(0.29)	0.64	(0.28)
SettlerShare	0.19	(0.30)	0.05	(0.04)
Controls:				
SizeAsym (Asymmetry of GDP)	-5.08	(1.97)	-4.20	(1.91)
NATURAL (Log(1/distance))	-8.69	(0.63)	-8.40	(0.81)
Observations:	416		113	

Notes: We use the baseline sample in Table 3 and Table 5. VOT is the suffrage rate of colonizers based on the electorate as a percentage of the enfranchised age and sex group, COMP measures the competition that colonizers face from other colonizers, Beta as the share of profits in colonies that went to colonizers is approximated by the share of exports going to the mother country, SettlerShare is the share of Western/Japanese settlers among the population in each colony, Trade content is the trade dependency of imperial power on each colony. The exact formulas of variables COMP, Beta, TradeContent, SizeAsym, DKL, SQDKL, and NATURAL, and data sources for variable construction, are explained in Online Appendix C. The slight difference in the number of PTAs in Panels A and B is due to the data availability of SettlerShare.

The recent literature has also highlighted the role played by bilateral trade imbalances in shaping the emergence of preferential trade agreements (Facchini et al., 2021). In particular it has been shown that greater bilateral imbalances lower the incentives to form a preferential trade agreement, as the exchange of market access between prospective members becomes more asymmetrical. In the context of colonial empires – as captured in our theoretical model – the trade policy adopted disproportionately reflected the interests

of the imperial power, which also controlled large portions of the colonies' economy. For this reason, the imperial power aimed at enhancing not only its own access to colonial markets, but also each colony's access to its own market. To capture this idea, we control for the average of the share of each country (colony and imperial power) in the other country's total exports (TradeContent). Table 2 provides summary statistics on the main variables of interest, as well as on the controls.

5 Empirical analysis

In this section, we start by presenting our empirical model and then discuss the main results.

5.1 Specification

Following the theoretical discussions and building on earlier empirical work in this literature (e.g. Facchini et al. 2021), we model the establishment of a preferential trade arrangement in a colonial empire as a two-stage decision: the imperial power first decides whether to create a PTA with the colony and then chooses its type, i.e. an FTA or a CU. In the empirical analysis, we start by assessing the predictions associated with the first stage decision of forming a PTA using a probit model. In the second step, we examine the choice of PTA type, using a probit model with sample selection (Van de Ven and Van Praag, 1981). To avoid the incidental parameter problem in controlling for country-pair fixed effects in a binary response model, we follow Egger and Larch (2008) and replace those fixed effects with the average of time-variant explanatory variables.[28]

The first stage decision is described by the following equation:

$$\begin{aligned} PTA_{m_j j,t} =& c_0 + c_1 VOT_{m_j,t-5} + c_2 COMP_{m_j,t-5} + c_3 Beta_{m_j j,t-5} + \\ & \gamma^{PTA} X_{m_j j,t-5} + \eta^{PTA} \overline{Z}_{m_j j} + \phi_{p,m_j} + \phi_p t + \epsilon_{m_j j,t}, \end{aligned} \tag{20}$$

where $PTA_{m_j j,t}$ is a binary variable that equals one if a colony j and its imperial power m_j are in a PTA in year t, $VOT_{m_j,t-5}$ is the share of the relevant age group who is enfranchised in imperial power m_j (an inverse proxy for the income of the median voter), $COMP_{m_j,t-5}$ is the inverse of the ratio between the GDP of the imperial power and that of its main competitors (again a proxy for the competition the imperial power faces in selling manufactures to its colonies) and $Beta_{m_j j,t-5}$ is the share of colonial exports directed

[28]More specifically, for time-variant variables which differ by colonizer-colony pair, we compute their averages by colonizer-colony pair; for those which only differ by imperial power, such as the rate of voting franchise, we compute the average by imperial power.

to the imperial power (a proxy for the share of profits generated in the colonies that belongs to investors based in the imperial power). Matrix X includes the determinants of PTA formation considered in the literature: asymmetry of economic size, log difference of GDPPC, square of log difference of GDPPC, geographical closeness and the dependency of the colonizer on trade with the colony.[29] Matrix $\overline{Z}$ includes time-invariant averages of all the control variables used in Equation (20). Finally, to account for unobserved determinants of changes in the imperial trade policy arrangements we include colonizer by period fixed effects (ϕ_{p,m_j}), and to account for common period specific trends across colonizers we also include period specific linear trends ($\phi_p t$). Based on our discussion in section 2, we identify three periods in our analysis: up to WWI; between WWI and WWII and after WWII. Given that the choice of a trade policy regime between a pair of countries is likely to affect their overall economic structure, using contemporaneous features of the country pair might lead to biased estimates because of reverse causality. To mitigate this concern, following Egger and Larch (2008), Bergstrand and Egger (2013) and Facchini et al. (2021) among others, we lag all right-hand side variables.

Our theoretical model suggests that the sign of the coefficients should satisfy $c_1 < 0$, $c_2 > 0$ and $c_3 > 0$. In other words, as the voting franchise is extended to poorer citizens, a PTA is less likely to emerge in equilibrium, given that the median voter in the imperial power enjoys fewer benefits from preferential trade. Meanwhile, a PTA is more likely to emerge if an imperial power faces greater competition from the rest of the world, and if it receives a greater share of the profits generated in the colony.

The second stage decision about the type of PTA to be adopted is captured by the following binary model:

$$\begin{aligned} CU_{m_j j,t} =& d_0 + d_1 SettlerShare_{j,t-5} + d_2 Beta_{m_j j,t-5} + \gamma^{CU} \tilde{X}_{m_j j,t-5} + \eta^{CU} \tilde{Z}_{m_j j} + \\ &+ \psi_{p,m_j} + \psi_p t + \nu_{m_j j,t}, \end{aligned} \tag{21}$$

where $CU_{m_j j,t}$ is a binary variable that equals one if a CU emerges between an imperial power m_j and its colony j, $SettlerShare_{j,t-5}$ is the degree of decentralization proxied by the share of settlers in colony j in year $t-5$, $Beta_{m_j j,t-5}$ is as defined in Equation (20), matrix $\tilde{X}_{m_j j,t-5}$ includes additional controls, $\tilde{Z}_{m_j j}$ includes the time-invariant averages of all the right-hand-side variables used in the specification, ψ_{p,m_j} and $\psi_p t$ are respectively colonizer by period fixed effects and a period-specific linear trend. Based on our theoretical model, $d_1 > 0$ and $d_2 > 0$. Given that a PTA was formed, a CU was more likely to emerge in equilibrium if an imperial power had less control over trade policies in a colony (i.e.,

[29] Given the dominant role played by the imperial powers in shaping the trade policy of the colony, we use this measure rather than bilateral trade imbalances as it is common in studies of modern PTA formation.

higher $SettlerShare_{j,t-5}$) or benefited more from profits generated in the colony. For the same reasons as explained above, the explanatory variables are lagged to mitigate the concern of reverse causality.

In the estimation, we assume the error terms $\epsilon_{m_j j,t}$ and $\nu_{m_j j,t}$ follow a zero mean, standard normal distribution with correlation coefficient ρ. Furthermore, standard errors are clustered at the imperial power-colony pair level to allow for possible correlation over time.

5.2 Main Results: Imperial preference

Table 3 reports the baseline results for the estimation of equation 20, capturing the drivers of the emergence of an imperial preferential trade arrangement. We start by presenting in column (1) the findings of a parsimonious specification, in which we account only for the drivers highlighted in our model, discussed explicitly in Hypotheses 1 and 2, and fixed effects.

This simple specification is able to explain approximately 41% of the variation of the data, suggesting that the factors highlighted in our model play an important role in shaping the formation and the evolution of preferential trade policies in colonial empires in the long run. As suggested by the model, our results indicate that the extension of the franchise, by reducing the income of the median voter in the imperial power, reduces her incentives to support the establishment of a preferential trade arrangement, as she gains a smaller share of the increase in profits resulting from preferential trading access. We also find that increased competition from other empires increases the likelihood that the imperial power will choose a preferential trade arrangement for its colonies, in order to secure better access to the colonies' market for its exports, and allow in exchange greater access to its own market for producers based in the colonies. Finally, our results indicate that the imperial power is more likely to support the creation of a PTA the greater is the share of profits generated in the colonies that accrues to investors based in the imperial power, even if this coefficient is imprecisely measured.

In column (2) we additionally control for a set of explanatory variables that have been suggested in the existing literature as drivers of the emergence of modern preferential trade arrangements. Including these controls improves the overall fit of the model (the Pseudo R^2 is now 0.47), but only trade content has a statistically significant effect: the greater the dependency of the colonizer on trade with the colony, the greater the likelihood that a PTA will emerge. This finding is in line with earlier work that has emphasized the role of bilateral trade imbalances in explaining the formation of modern PTAs (e.g. Facchini et al. (2021)). Noticeably, accounting for the additional drivers proposed in the literature does not affect the sign and significance of the determinants proposed in our

theoretical model.

To quantify the economic impact of the drivers considered in the analysis, in column (3) we report the corresponding marginal effects. The latter capture the change in the probability of establishing a preferential trade arrangement due to an infinitesimal change in each independent, continuous variable and a discrete change in probability for a dichotomous indicator. Our results indicate that if the suffrage rate of the adult population increased by 10 percentage points, the probability of forming a PTA would decrease by 3 percentage points (0.031). Alternatively, an increase in the suffrage rate by one standard deviation (0.33) would lead to a decline by 0.101 in the probability of a PTA emerging, equivalent to a 30.2% drop in the sample average probability of forming a PTA. Turning to the effect of competition from other empires, our estimates indicate that a one-standard deviation increase in our measure (0.60) would increase by 43 percentage points the likelihood that a PTA will emerge. These findings indicate that both the extent of the franchise and the competition faced by colonial empires were economically important determinants of the trade policy arrangements adopted. In addition, our analysis also indicates that the dependence of the imperial power on trade with a colony – as captured by $TradeContent$ – was also an important factor in shaping whether a preferential trade regime was adopted. A one-standard deviation increase in the dependence of the imperial power on trade with the colony (0.02) increases by 9 percentage points the probability that a PTA will emerge between the two countries.

In Table 4 we assess the robustness of our baseline estimates of the determinants of the emergence of a PTA in an empire along three dimensions. In columns (1)-(4) we start by experimenting with alternative definitions of our main explanatory variables.

As discussed in Hypothesis 2 the effect of inequality on the likelihood that an imperial power will adopt a PTA with a colony might involve threshold effects, rather than being monotonic as we have assumed in Table 3. To address this possibility in column (1) we replace our continuous measure of inequality based on the share of the population enfranchised in the imperial power with an indicator variable equal to 1 if the share of the population enfranchised is above the median of the distribution among the imperial powers. In column (2) we repeat the same exercise, this time by constructing an indicator variable based instead on the mean of the distribution. Our results are robust and confirm that if inequality is sufficiently high, the imperial power is less likely to adopt a PTA arrangement. In column (3) we further explore the role of inequality by additionally controlling for the share of total wealth accruing to the top 1% of the population. Although these data come from different sources[30] and have been collected with different methodologies, our baseline

[30]To construct historical measures of inequality, we have combined information from Albers et al. (2022), Guilera (2010), Lindert (2000), Moriguchi and Saez (2008), Gabbuti and Morelli (2022), and the World Inequality Database (https://wid.world/wid-world/). As in the case of Japan, information on the

Table 3. Imperial Trade Preference

	(1) Our	(2) All	(3) Marginal effects of (2)
VOT	-1.265**	-1.645**	-0.310**
	(0.609)	(0.708)	(0.130)
COMP-GDP	2.786***	3.805***	0.717***
	(0.695)	(0.800)	(0.139)
Beta	0.157	0.037	0.007
	(0.413)	(0.432)	(0.081)
SizeAsym		0.258	0.049
		(0.185)	(0.035)
DKL		-0.239	-0.045
		(0.801)	(0.151)
SQDKL		0.299	0.056
		(0.324)	(0.061)
NATURAL		0.058	0.011
		(0.231)	(0.044)
TradeContent		21.658***	4.083***
		(7.422)	(1.409)
Constant	-13.420***	-13.957***	
	(1.806)	(3.500)	
Period-specific trends	Yes	Yes	
Period-Colonizer FE	Yes	Yes	
Observations	1232	1232	1232
Pseudo R^2	0.413	0.471	
AIC	959.561	885.951	.
BIC	1046.540	1018.977	.

Notes: Probit models. Columns (1)-(2) provide parameter estimates; column (3) presents marginal effects calculated using the estimates of column (2). Each specification includes time-invariant averages of the control variables. Standard errors for estimated coefficients are clustered at imperial power-colony pair level and shown in parentheses. "***", "**", "*" denote significance at 1%, 5% and 10% levels, respectively.

results are unaffected.

Our main measure of competition faced by the imperial power is based on its relative economic size compared to that of its main competitors. In column (4) we replace this measure with an alternative one based on the share of manufacturing output – as constructed by Bairoch (1982). The sign, magnitude and statistical significance of our results are unaffected.

In columns (5)–(7) we assess the robustness of our findings to different sample structures. In our baseline analysis, to code the PTA variable, we required information on the trade policy stance of both the imperial power and the colony. In some instances, information on the trade policy of the colony was missing, whereas data from the imperial power indicated that the colony's trade received preferential access. As imperial preferential

distribution of wealth is not available, instead we have used information on the distribution of income

access was typically reciprocal, in column (5) we use a less restrictive definition of PTA, which assumes such an arrangement to be in place for an imperial power–colony pair as long as this was indicated in data from the imperial power, even if such information was missing for the colony. Doing so we expand the sample size by about 2.6%, but the results are broadly unaffected.

All our empirical specifications so far assume constant boundaries for the geographic units considered in the analysis. In reality, multiple independent British colonies established new national entities throughout the period considered in our analysis – e.g. Australia,[31] Canada,[32] and South Africa.[33] As the factors behind the trade policy arrangements of the imperial power with these larger entities might differ from those in place with each individual colony, we assess the robustness of our findings to completely dropping these colonies from the analysis (column 6). The sign and significance of our baseline results are unaffected.

Several of the colonies included in our analysis are very small and their economy was very specialized in a limited number of products. In column (7) we assess the robustness of our results to dropping colonies from our analysis falling in the smallest decile by population as 1900. Reassuringly, our results are unaffected. Some of the imperial powers in our sample experienced periods in which democratic institutions were suspended and authoritarian regimes took power (Italy between 1922–1943, Portugal after 1926). Excluding observations from these country–year pairs does not affect our main results (column 8). Finally, our baseline model controls for country–pair characteristics using time invariant averages of our control variables, following the earlier literature (Egger and Larch 2008; Facchini et al. 2021). We can test the robustness of our findings to the inclusion of imperial power-colony fixed effects by estimating a simple linear probability model (column 9). Once again, our main results are unaffected.

5.3 Additional Results: Imperial Preference Regime

The analysis carried out so far indicates that the main factors identified in our theoretical model play an important role in shaping the emergence of preferential trade arrangements between imperial powers and their colonies. Our theoretical model also identifies a set of factors that should shape the type of preferential trade arrangement to be adopted

[31]The six British colonies of Queensland, New South Wales, Victoria, Tasmania, South Australia and Western Australia established the Commonwealth of Australia, which formally came into existence in 1901.

[32]Several of the current Canadian provinces were separate entities in history. The Province of Canada (Quebec and Ontario), New Brunswick, and Nova Scotia merged into the Dominion of Canada in 1867, with British Columbia and Prince Edward Island joining in 1871 and 1873 respectively.

[33]The Union of South Africa – the historical predecessor of the present-day Republic of South Africa – came into existence in 1910 with the unification of the Cape, Natal, Transvaal and Orange River colonies.

Table 4. Imperial Trade Preference: Robustness checks

	(1) Dummy Median	(2) Dummy Mean	(3) Inequality	(4) Competition Manufactures	(5) Alternative PTA	(6) Removing CAS	(7) Removing Small colonies	(8) Removing Dictatorships	(9) LPM
VOT			-0.286**	-0.229**	-0.338**	-0.261*	-0.286**	-0.272**	-0.206*
			(0.114)	(0.106)	(0.134)	(0.140)	(0.135)	(0.125)	(0.119)
VOTMedian	-0.181***								
	(0.062)								
VOTMean		-0.170***							
		(0.057)							
COMP-GDP	0.809***	0.792***	0.809***		0.725***	0.748***	0.715***	0.720***	0.646***
	(0.173)	(0.164)	(0.205)		(0.142)	(0.149)	(0.141)	(0.139)	(0.108)
Beta	0.009	0.009	0.006	0.038	-0.017	0.023	0.037	-0.003	-0.008
	(0.082)	(0.083)	(0.082)	(0.082)	(0.082)	(0.095)	(0.066)	(0.081)	(0.089)
TradeContent	3.739***	4.091***	3.652**	4.558***	4.112***	4.581***	2.861*	4.050***	3.055***
	(1.353)	(1.358)	(1.444)	(1.586)	(1.430)	(1.765)	(1.683)	(1.402)	(1.084)
SizeAsym	0.048	0.047	0.050	0.046	0.060	0.018	0.022	0.049	-0.014
	(0.035)	(0.035)	(0.035)	(0.034)	(0.037)	(0.052)	(0.040)	(0.035)	(0.042)
DKL	-0.045	-0.045	-0.056	0.025	-0.027	0.035	-0.043	-0.042	-0.089
	(0.152)	(0.152)	(0.152)	(0.155)	(0.149)	(0.188)	(0.158)	(0.150)	(0.171)
SQDKL	0.059	0.059	0.061	0.021	0.047	0.042	0.026	0.056	0.039
	(0.061)	(0.061)	(0.061)	(0.060)	(0.058)	(0.070)	(0.064)	(0.060)	(0.070)
NATURAL	0.012	0.013	0.011	0.009	0.008	0.020	0.015	0.011	
	(0.043)	(0.043)	(0.044)	(0.044)	(0.044)	(0.054)	(0.042)	(0.043)	
INEQtop1			-0.393						
			(0.781)						
COMP- Manu				0.852***					
				(0.109)					
ColonizerColonyFE	No	No	No	No	No	No	No	No	Yes
Period-specific trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period-Colonizer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1232	1232	1232	1232	1265	1014	1049	1222	1228

Notes: Columns (1)-(8) probit models; marginal effects are reported. Each specification includes time-invariant averages of the control variables. Column (9): Linear Probability model. Standard errors for estimated coefficients are clustered at imperial power-colony pair level and shown in parentheses. "***", "**" and "*" denote significance at 1, 5, and 10 percent levels, respectively.

by the imperial power with its colonies. In particular, Hypothesis 3 indicates that if a PTA has been adopted, it is more likely to take the form of a CU-like arrangement if the colony retains greater decision-making power when it comes to the determination of the external trade policy. Furthermore, a CU is also more likely to emerge the more aligned the interests of the policy makers (in the imperial power and in the colony) who are in charge of setting the external tariff, i.e. the larger the share of the profits generated in the colony that accrue to citizens of the imperial power.

To assess this additional set of predictions, in Table 5 we present the estimates of the probit model with sample selection presented in section 5.1. The bottom panel reports the results of the estimation of the model capturing the PTA formation decision (selection equation), whereas the top panel presents the findings of the model capturing the choice of the PTA type (latent equation). Column (1) presents the coefficient estimates, whereas column (2) reports the marginal effects. The results in the bottom panel are in line with the baseline findings of Table 3. As for the choice of PTA type, we find broad support for the predictions of the theoretical model: a CU-like arrangement is more likely to emerge whenever a colony enjoys greater decision-making power (i.e., higher share of settlers), and the larger is the share of profits generated in the colony that is captured by the mother country. In addition, confirming previous findings in the literature studying modern PTAs (e.g. Lake and Yildiz 2016), we find that the greater the geographical distance between countries in a pair, the less likely it is for a CU to be adopted as the imperial preference regime.

In the remainder of the table, we explore the robustness of our findings. Melatos and Woodland (2007) have argued that size asymmetries might affect the likelihood that a CU will be the preferred type of PTA. For this reason, in column (3) we account for the difference in market size between the imperial power and the colony, but the estimated coefficient is not statistically significant. More importantly, including this additional control does not affect our main results. Furthermore, as discussed in the presentation of Table 4 results, our baseline analysis has been carried out assuming constant boundaries. To account for the fact that the incentives to form different PTA-like arrangements might differ as new large national entities emerge (Australia, Canada, and South Africa), in columns 4 and 5, we completely drop the original underlying colonies from our sample. Our results are broadly unaffected.[34]

The analysis thus far indicates that the data broadly support the predictions of our theoretical model. At the same time, it is instructive to investigate how well our complete

[34]As suggested in Section 4.2, we test the robustness of these results to dropping observations related to dictatorship regimes in specific imperial powers during the 1920s and 1930s. Our key results remain unchanged, including the expected negative effects of vote-franchise expansion on the likelihood of PTA formation.

Table 5. Imperial Preference Regime

	(1)	(2)	(3)	(4)	(5)
	Baseline model		Robustness checks		
			Add controls	Removing CAS	
	Estimates	Marginal Effect	Margin.	Margin.	Margin.
CU-FTA decision (latent)					
SettlerShare	93.998***	4.826***	4.629***	5.915**	4.285**
	(32.817)	(1.813)	(1.751)	(2.808)	(1.736)
Beta	1.909*	0.098**	0.115***	0.117*	0.090**
	(1.109)	(0.049)	(0.030)	(0.062)	(0.037)
NATURAL	-2.063***	-0.106***	-0.109***	-0.120***	-0.089**
	(0.444)	(0.021)	(0.018)	(0.024)	(0.036)
SizeAsym			0.008		0.006
			(0.044)		(0.029)
Period-specific trends	Yes		Yes	Yes	Yes
Period-Colonizer FE	Yes		Yes	Yes	Yes
PTA decision – selection					
VOT	-1.690**	-0.318**	-0.317**	-0.267*	-0.248*
	(0.723)	(0.132)	(0.126)	(0.141)	(0.141)
COMP-GDP	3.848***	0.723***	0.718***	0.747***	0.743***
	(0.837)	(0.145)	(0.142)	(0.156)	(0.150)
Beta	-0.042	-0.008	-0.006	0.008	0.030
	(0.422)	(0.079)	(0.080)	(0.094)	(0.097)
SizeAsym	0.260	0.049	0.051	0.021	0.017
	(0.183)	(0.035)	(0.035)	(0.051)	(0.052)
DKL	-0.113	-0.021	-0.028	0.065	0.026
	(0.792)	(0.149)	(0.150)	(0.187)	(0.192)
SQDKL	0.261	0.049	0.051	0.033	0.042
	(0.312)	(0.058)	(0.058)	(0.068)	(0.072)
NATURAL	0.097	0.018	0.017	0.030	0.015
	(0.230)	(0.043)	(0.044)	(0.054)	(0.052)
TradeContent	25.069***	4.709***	4.553***	5.394***	3.782**
	(6.999)	(1.331)	(1.296)	(1.689)	(1.919)
Period-specific trends	Yes		Yes	Yes	Yes
Period-Colonizer FE	Yes		Yes	Yes	Yes
# of obs.	1230		1230	1012	1012
# of obs. PTAs	414		414	360	360
LR test	2.62		2.93*	239.27***	1.5

Notes: Probit models with sample selection. Column (1): coefficient estimates; columns (2)-(5) marginal effects. Each specification includes time-invariant averages of the control variables. Standard errors for estimated coefficients are clustered at imperial power-colony pair level and shown in parentheses. "***", "**" and "*" denote significance at 1, 5 and 10 percent levels, respectively.

specification predicts the emergence of an imperial trade preference and its type. To tackle these questions, we can use the fitted probabilities from the selection and latent equations, respectively. As discussed in section 4.2, out of 1232 country pair observations in our sample, 416 or roughly 34% had an Imperial Preference in place. Moreover, among the country pairs with an Imperial preferential arrangement, 113 or 27% of the total had arrangements akin to a CU. Following Bergstrand and Egger (2013) and Facchini et al. (2021) we can use this a priori information on the proportion of events (Imperial

Preference and CU/FTA formation) and non-events to calculate cutoff probabilities for the share of correctly predicted 'true positives' and 'true negatives'.

Focusing on the selection equation in column (1) of Table 5, our model correctly predicts 56.7% of the observations belonging to a PTA and 94.5% of the observations that do not belong to a PTA – or an overall share of correct predictions of 81.7%. Turning to the choice of Imperial Preference Regime, our model can correctly predict 97.6% of the choices: 92.9% of the 113 colonizer-colony pairs that belong to the same CU and 99.3% of the 301 colonizer-colony pairs that belong to the same FTA. Summing up, our empirical framework for the study of the emergence of Imperial Preference and the type of Imperial Preferential Regimes is quite successful at correctly predicting the observed outcomes, and is remarkably consistent with existing studies of the determinants of modern preferential trade arrangements.

6 Conclusion

In this paper, we have examined the evolution of trade policy arrangements within the colonial empires of the industrial era. We built a novel, rich dataset covering nearly 150 years, seven major imperial powers and up to 127 colonies. Our analysis documents the widespread usage of imperial trade preferences, albeit with substantial variation across time and space. Notably, in some cases, the extension of trade preferences also entailed the adoption of a common external tariff, an arrangement akin to modern customs unions.

We have then proposed a political economy framework to provide a lens to understand the evolution of imperial trade arrangements over time. We have identified three key forces that are likely to play an important role: changes in the position of the median voter in the imperial power, which are related to the secular extension of the voting franchise that took place between the end of the nineteenth and the first half of the twentieth century; the extent of competition among colonial empires; and differences in the institutional arrangements both across and within empires, with some colonies enjoying greater devolution of decision-making powers than others.

Our theoretical model generates a set of testable hypotheses, which we assess using our newly constructed dataset. Our analysis provides strong support for the predictions of the model. In particular, our results indicate that an imperial power is more likely to implement a preferential trade arrangement with a colony, the greater the competition it faces from other empires. In addition, a PTA is less likely to emerge as the franchise is extended in the imperial power, making the median voter poorer. Turning to the choice of the imperial preference regime, our analysis indicates that a common external tariff is more likely to be adopted in decentralized empires and the greater is the share of profits

generated in the colony that is captured by the imperial power.

Our theoretical framework abstracts from many real-world complexities, focusing on a stylized model of democratic politics and the shifting influence of the median voter. In practice, political outcomes are also shaped by more intricate dynamics, including the lobbying power of organized interests. This was especially relevant in the colonial context, where large corporations not only helped drive imperial expansion but also played a prominent role in the governance of empires. Understanding the political economy of corporate influence in colonial trade policy is an important avenue for future research, which we leave for subsequent work.

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Online Appendix

A Theory appendix

A.1 Propositions 1 and 2

Proof of Proposition 1

Step 1: derive an expression for Δv. To assess how the creation of an FTA with the colony affects the welfare of the imperial power's residents, it is useful to distinguish between the two markets involved—the imperial power and the colony—and between the two product types—manufactured and agricultural. This strategy exploits the fact that markets are segmented to study the effects of changes in the parameters, n^m, β, and γ^{med}. Formally, the change in welfare from the formation of an FTA can be written as follows:

$$\begin{aligned}\Delta v(\overline{\gamma}_I) = \Delta v_I^m\left(t_I^{MFN,m}, t_I^{FTA,m}, \overline{\gamma}_I\right) + \Delta v_C^m\left(t_C^{MFN,m}, t_C^{FTA,m}, \overline{\gamma}_I\right) \\ + \Delta v_I^a\left(t_I^{MFN,a}, t_I^{FTA,a}, \overline{\gamma}_I\right) + \Delta v_C^a\left(t_C^{MFN,a}, t_C^{FTA,a}, \overline{\gamma}_I\right).\end{aligned}$$

The first two terms capture the change in welfare in the manufactured goods market, whereas the last two describe the effects on agricultural markets. Using the equilibrium tariffs described in equations (7)–(10), note first that $t_I^{MFN,m} = t_I^{FTA,m}$, because the colony does not produce this good. Likewise, the tariff applied by the colony on the agricultural product is prohibitive in both trade regimes. As a result, only the change in welfare arising from sales of manufactured goods in the colony (Δv_c^m) and sales of the agricultural product to the imperial power (Δv_I^a) shape the welfare effects of FTA formation relative to the MFN regime:

$$\Delta v(\overline{\gamma}_I) = \Delta v_C^m\left(t_C^{MFN,m}, t_C^{FTA,m}, \overline{\gamma}_I\right) + \Delta v_I^a\left(t_I^{MFN,a}, t_I^{FTA,a}, \overline{\gamma}_I\right). \tag{22}$$

Let $s \equiv H - c > 0$ and $g \equiv \gamma^{med}\beta$. The average voter's welfare gain Δv_C^m equals the change in profits of I's firm in C. Using expression (3) adapted to C, profits satisfy $\pi_{I,C}^m = (s + n^m t_{F,C}^m)^2/(n^m+2)^2$. Under MFN, $t_C^{MFN,m} = 0$, giving $\pi_{I,C}^{MFN} = s^2/(n^m+2)^2$. Under FTA, $t_{F,C}^{FTA,m} = s/2$, so $\pi_{I,C}^{FTA} = s^2/4$. Hence:

$$\Delta v_C^m = \frac{s^2}{4} - \frac{s^2}{(n^m+2)^2} = \frac{s^2\, n^m(n^m+4)}{4(n^m+2)^2}.$$

Turning now to Δv_I^a, the Cournot first-order conditions in a market with inverse demand $p = H - Q$ give $x_i = s - Q - t_i$. Under MFN, both the colonial firm (C) and the foreign firm (F) pay the common tariff $t_I^{MFN,a} = s(1-g)/(4-g)$; the symmetric

equilibrium gives:

$$x_{C,I}^{MFN} = x_{F,I}^{MFN} = \frac{s}{4-g}, \qquad Q^{MFN} = \frac{2s}{4-g}.$$

Under FTA, the colonial firm faces zero tariff while the foreign firm faces $t_{F,I}^{FTA,a} = s(1+2g)/(11-2g)$; solving the asymmetric system ($2x_C + x_F = s$, $x_C + 2x_F = s - t_F$) gives:

$$x_{C,I}^{FTA} = \frac{4s}{11-2g}, \qquad x_{F,I}^{FTA} = \frac{s(3-2g)}{11-2g}, \qquad Q^{FTA} = \frac{s(7-2g)}{11-2g}.$$

With quasi-linear quadratic preferences, consumer surplus equals $Q^2/2$. Assembling consumer surplus, the average voter's share β of the colonial firm's profits, and tariff revenue under each regime:

$$v_I^{a,MFN} = \underbrace{\frac{2s^2}{(4-g)^2}}_{\text{CS}} + \underbrace{\beta \cdot \frac{s^2}{(4-g)^2}}_{\beta\,\pi_{C,I}^{MFN}} + \underbrace{\frac{2s^2(1-g)}{(4-g)^2}}_{\text{tariff revenue}} = \frac{s^2\,(4+\beta-2g)}{(4-g)^2},$$

$$v_I^{a,FTA} = \underbrace{\frac{s^2(7-2g)^2}{2(11-2g)^2}}_{\text{CS}} + \underbrace{\beta \cdot \frac{16s^2}{(11-2g)^2}}_{\beta\,\pi_{C,I}^{FTA}} + \underbrace{\frac{s^2(1+2g)(3-2g)}{(11-2g)^2}}_{\text{tariff revenue}} = \frac{s^2\left[55-20g-4g^2+32\beta\right]}{2(11-2g)^2}. \tag{23}$$

Taking the difference and combining with Δv_C^m yields expression (24):

$$\Delta v(\overline{\gamma}_I) = \frac{s^2 n^m (4+n^m)}{4(2+n^m)^2} - s^2\,\Phi. \tag{24}$$

where

$$\Phi = \frac{2\left(4+\beta-2\beta\gamma^{med}\right)(11-2\beta\gamma^{med})^2 - (4-\beta\gamma^{med})^2\left[55-20\beta\gamma^{med}-4(\beta\gamma^{med})^2+32\beta\right]}{2(4-\beta\gamma^{med})^2(11-2\beta\gamma^{med})^2}.$$

Step 2: show that $d\Delta v/dn^m > 0$ and $d\Delta v/d\beta > 0$. Since Φ does not depend on n^m,

$$\frac{\partial\,\Delta v\,(\overline{\gamma}_I)}{\partial n^m} = \frac{2s^2}{(n^m+2)^3} > 0.$$

The minimum over $n^m \geq 1$ is attained at $n^m = 1$, where $\Delta v_C^m = 5s^2/36$.

Note that Φ can be re-written as:

$$\Phi = \frac{P(\beta)}{2(4-\gamma^{med}\beta)^2(11-2\gamma^{med}\beta)^2},$$

where

$$P(\beta) = 88 - \left(270 + 76\gamma^{med}\right)\beta + \left(168\gamma^{med} + 57(\gamma^{med})^2\right)\beta^2 - \left(24(\gamma^{med})^2 + 28(\gamma^{med})^3\right)\beta^3 + 4(\gamma^{med})^4\beta^4.$$

Taking the derivative of this w.r.t. β we obtain:

$$\frac{d\Phi}{d\beta} = \frac{R(\gamma^{med}, \beta)}{2(4 - \gamma^{med}\beta)^3(11 - 2\gamma^{med}\beta)^3},$$

where

$$\begin{aligned} R(\gamma^{med}, \beta) \equiv\ & P'(\beta)\,(4 - \gamma^{med}\beta)(11 - 2\gamma^{med}\beta) + 2\gamma^{med}P(\beta)\,(19 - 4\gamma^{med}\beta) \\ =\ & -11880 + \left(9654\gamma^{med} + 2868(\gamma^{med})^2\right)\beta \\ & - \left(1548(\gamma^{med})^2 + 3240(\gamma^{med})^3\right)\beta^2 \\ & - \left(216(\gamma^{med})^3 - 1008(\gamma^{med})^4\right)\beta^3 \\ & + \left(48(\gamma^{med})^4 - 96(\gamma^{med})^5\right)\beta^4. \end{aligned}$$

Since the denominator of this expression is positive, the derivative has the same sign as $R(\gamma^{med}, \beta)$, and it can be shown that $R(\gamma^{med}, \beta) < 0$ for $\left(\gamma^{med}, \beta\right) \in [0, 1]^2$. It follows that

$$\frac{\partial \Delta v_I^a}{\partial \beta} > 0.$$

Step 3: Show that $\Delta v > 0$. Step 2 has shown that Δv is strictly increasing in n^m (for $n^m \geq 1$) and in β (for $\beta \in [0, 1]$). The global minimum is attained at the corner $n^m = 1$, $\beta = 0$:

$$\Delta v\,(\overline{\gamma}_I) \ \geq\ \frac{5s^2}{36} - \frac{s^2}{44} = \frac{23s^2}{198} > 0,$$

establishing FTA $\succ$ MFN.

Step 4: FTA always dominates CU. Finally, we compare an FTA with a CU from the point of view of the imperial power's welfare, i.e. the average voter's indirect utility ($\overline{\gamma}_I = 1$). In the centralized empire the external tariffs of both countries are set by a single representative; under an FTA these tariffs can differ across the imperial power and the colony, whereas a CU forces them to be equal. The set of tariffs feasible under a CU is therefore a subset of those feasible under an FTA, so the highest attainable welfare is weakly greater under an FTA. The inequality is strict here because the welfare-maximizing external tariffs differ across the two countries: the colony's tariff on manufactures is prohibitive (eq. 10) while the imperial power's is interior (eq. 9), so the common-external-tariff constraint of a CU binds. Hence FTA $\succ$ CU, which completes the proof of Proposition 1. ■

Proof of Proposition 2

The median voter's welfare change from MFN to FTA decomposes as in equation (22),

with $\overline{\gamma}_I$ replaced with γ^{med}:

$$\Delta v\left(\gamma^{med}\right) = \Delta v_C^m\left(t_C^{MFN,m}, t_C^{FTA,m}, \gamma^{med}\right) + \Delta v_I^a\left(t_I^{MFN,a}, t_I^{FTA,a}, \gamma^{med}\right).$$

Step 1: CU is never politically viable. The representative of the median voter faces the same CU feasibility constraint as the average voter. Since $\gamma^{med} \leq 1 < 3/2$, the manufacturing tariff is interior under FTA, so $t_{F,C}^{FTA,m} = s/2 \neq t_{F,I}^{FTA,m}$, and the CU constraint is strictly binding. The CU is therefore strictly worse than the FTA for the representative, regardless of the value of γ^{med}. CUs are thus never politically viable.

Step 2: derive an expression for $\Delta v\left(\gamma^{med}\right)$. Since the median voter has a stake γ^{med} in profits, the manufacturing profit gain from the FTA is:

$$\Delta v_C^m\left(t_C^{MFN,m}, t_C^{FTA,m}, \gamma^{med}\right) = \gamma^{med} \cdot \frac{s^2\, n^m(n^m+4)}{4(n^m+2)^2}.$$

It follows that we can write

$$\Delta v\left(\gamma^{med}\right) = \gamma^{med} \cdot \frac{s^2\, n^m(n^m+4)}{4(n^m+2)^2} + \Delta v_I^a\left(t_I^{MFN,a}, t_I^{FTA,a}, \gamma^{med}\right).$$

Step 3: $\Delta v(\gamma^{med})$ *is strictly increasing in* γ^{med}. Since tariffs maximize the median voter's welfare, we can apply the envelope theorem. Differentiating, we thus obtain:

$$\frac{\partial\, \Delta v\left(\gamma^{med}\right)}{\partial \gamma^{med}} = \frac{s^2\, n^m(n^m+4)}{4(n^m+2)^2} + \beta\left[\pi_{C,I}^{a,FTA}(g) - \pi_{C,I}^{a,MFN}(g)\right] > 0,$$

where the first term is clearly positive, and the second one is positive because the FTA grants the colonial firm strictly preferential access in I: $\pi_{C,I}^{a,FTA}(g) - \pi_{C,I}^{a,MFN}(g) = 16s^2/(11-2g)^2 - s^2/(4-g)^2 > 0$, since $4(4-g) > 11-2g$ for all $g \in [0,1]$.

Step 4: Existence and uniqueness of the threshold. At $\gamma^{med} = 0$: both $\Delta v_C^m = 0$ and $g = 0$, so $\Delta v(0) = \Delta v_I^a(0) = -s^2/44 < 0$. At $\gamma^{med} = 1$: $\Delta v(1) > 0$ by Proposition 1. Since Δv is continuous and strictly increasing in γ^{med} (Step 3), the intermediate value theorem gives a unique threshold $\breve{\gamma}^{med} \in (0,1)$ at which $\Delta v(\gamma^{med}) = 0$. The FTA is politically viable if and only if $\gamma^{med} > \breve{\gamma}^{med}$.

Step 5: Comparative statics of the threshold. At the threshold, $\Delta v(\breve{\gamma}^{med}, \beta, n^m) = 0$. By the implicit function theorem:

$$\frac{d\breve{\gamma}^{med}}{d\beta} = -\frac{\partial \Delta v/\partial \beta}{\partial \Delta v/\partial \gamma^{med}}, \qquad \frac{d\breve{\gamma}^{med}}{dn^m} = -\frac{\partial \Delta v/\partial n^m}{\partial \Delta v/\partial \gamma^{med}}.$$

The denominator is positive (Step 3). For the numerators:

$$\frac{\partial \Delta v}{\partial \beta} = \gamma^{med}\Big[\pi_{C,I}^{a,FTA}(g) - \pi_{C,I}^{a,MFN}(g)\Big] > 0,$$
$$\frac{\partial \Delta v}{\partial n^m} = \gamma^{med} \cdot \frac{2s^2}{(n^m+2)^3} > 0.$$

Both numerators are positive, so $d\breve{\gamma}^{med}/d\beta < 0$ and $d\breve{\gamma}^{med}/dn^m < 0$: the threshold is strictly decreasing in both β and n^m. ■

A.2 Strategic delegation

This appendix characterizes the second-stage delegation equilibrium under a CU in the decentralized empire, and the resulting equilibrium common external tariffs, for $n^m = 1$. It also describes the computation behind Figure 1. Throughout, $s \equiv H - c$, and tariffs are capped at the prohibitive level $s/2$, at which imports from F cease (see eq. 4). We denote the stakes in the colonial firm's profits held by the imperial and colonial median voters by $g \equiv \beta\gamma^{med}$ and $h \equiv (1-\beta)\gamma^{med}$, respectively.

A doubling property. With $n^m = 1$, the stage-3 rule (19) sets both common external tariffs according to the same function,

$$t(z) = \frac{s(1+2z)}{11-2z},$$

where z is the joint stake of the two representatives in the relevant firm: $z = \widehat{\gamma}_I$ for manufacturing and $z = \beta\widehat{\gamma}_I + (1-\beta)\widehat{\gamma}_C$ for agriculture. Now consider a voter holding a stake σ in one of the two firms. Under a CU the firm earns profits in both union markets, while the voter collects consumer surplus and tariff revenue in her own country only. Maximizing her payoff over the common tariff[35] gives her preferred ("bliss") common tariff:

$$t^*(\sigma) = \frac{s(1+4\sigma)}{11-4\sigma} = t(2\sigma), \tag{25}$$

which reaches the prohibitive level $s/2$ exactly at $\sigma = 3/4$. Equation (25) is the key to everything that follows: because profits accrue from two markets while the costs of protection are borne in one, *each voter would like the common tariffs to be set by representatives whose joint stake is twice her own* ($z = 2\sigma$). This is the source of the strategic delegation problem discussed in Section 3.2.2.

The colony's best response. The colony's median voter cares about the agricultural

[35] In the agricultural sector, for instance, the relevant payoff is $\overline{S}(T) + \overline{R}(T) + 2\sigma\overline{\pi}(T)$, where $\overline{\pi}(T) = [(s+T)/3]^2$, $\overline{R}(T) = T(s-2T)/3$, and $\overline{S}(T) = (2s-T)^2/18$ are the colonial firm's per-market profit, the importer's tariff revenue, and consumer surplus, computed from the equilibrium quantities (4) with a zero internal tariff. The first-order condition gives (25).

tariff only, since colonial residents own no share of the manufacturing firm. By (25), she would like the joint agricultural stake to equal twice her own, $2h$. Given the tariff rule, she achieves this — whenever feasible — by electing:

$$\widehat{\gamma}_C = \max\left\{0,\ 2\gamma^{med} - \frac{\beta\,\widehat{\gamma}_I}{1-\beta}\right\}. \tag{26}$$

At $\beta = 0$ she elects a representative twice as protectionist as herself ($\widehat{\gamma}_C = 2\gamma^{med}$). As β rises, the imperial representative's own stake in the colonial firm provides part of the protection she seeks, and she delegates less; she stops delegating altogether ($\widehat{\gamma}_C = 0$) once $\beta\widehat{\gamma}_I \geq 2(1-\beta)\gamma^{med}$.

The imperial power's best response and the equilibrium. By (25), the imperial median voter would like the manufacturing tariff to equal $t(2\gamma^{med})$ and the agricultural tariff to equal $t(2g)$, but she has a single instrument, $\widehat{\gamma}_I$, which enters both stage-3 stakes. Two cases arise.

Alignment ($\beta \geq 1/2$, implying $g \geq h$) Suppose the colony is at the corner $\widehat{\gamma}_C = 0$. Then the agricultural joint stake is $\beta\widehat{\gamma}_I$, and the single choice $\widehat{\gamma}_I = 2\gamma^{med}$ hits *both* of the imperial median voter's targets at once: $z^m = 2\gamma^{med}$ and $z^a = 2\beta\gamma^{med} = 2g$. Conversely, given $\widehat{\gamma}_I = 2\gamma^{med}$, the colony's best response (26) is indeed the corner $\widehat{\gamma}_C = 0$ whenever $\beta \geq 1/2$. The equilibrium is thus $(\widehat{\gamma}_I, \widehat{\gamma}_C) = (2\gamma^{med}, 0)$, with common external tariffs

$$T^m = \min\left\{t^*(\gamma^{med}), \tfrac{s}{2}\right\}, \qquad T^a = \min\left\{t^*(g), \tfrac{s}{2}\right\}. \tag{27}$$

Although both representatives are (weakly) more protectionist than their median voters, for $\beta \geq 1/2$ strategic delegation imposes *no distortion* on the imperial median voter: the tariffs in (27) are exactly her preferred ones. This is why, in Figure 1, the CU dominates the FTA in the whole upper part of the parameter space.

Misalignment ($0 < \beta < 1/2$, implying $g < h$). Now the colony's best response is interior, and in equilibrium she secures her own preferred agricultural tariff, $T^a = t^*(h)$ — which, since $h > g$, exceeds the imperial median voter's preferred level $t^*(g)$.[36] The imperial median voter then faces a trade-off: raising $\widehat{\gamma}_I$ moves the manufacturing tariff toward her target $t(2\gamma^{med})$ but, for a given $\widehat{\gamma}_C$, it also pushes the (already too high) agricultural tariff further up. As a result, she *shades* her delegation below $2\gamma^{med}$: the equilibrium value $\widehat{\gamma}_I = x^*$ is the unique root on $(\gamma^{med}, 2\gamma^{med}]$ of the cubic equation

$$2\gamma^{med} - x = \kappa\,(11-2x)^3, \qquad \kappa \equiv \frac{2\beta\gamma^{med}(1-2\beta)}{[11-4(1-\beta)\gamma^{med}]^3} \geq 0, \tag{28}$$

and the equilibrium tariffs are $T^m = \min\{t(x^*), s/2\}$ and $T^a = \min\{t^*(h), s/2\}$. Note

[36] To see that the equilibrium tariff is $t^*(h)$, use the interior value of (26) to see that $\beta\widehat{\gamma}_I + (1-\beta)\widehat{\gamma}_C = 2(1-\beta)\gamma^{med} = 2h$. The equilibrium tariff is then $t(2h) = t^*(h)$.

that $x^* = 2\gamma^{med}$ exactly at $\beta \in \{0, 1/2\}$: at $\beta = 0$ the imperial median voter holds no stake in the colonial firm, so there is no agricultural drag on her delegation ($\kappa = 0$), while at $\beta = 1/2$ the targets of the two countries coincide. Shading is therefore strongest for intermediate values of $\beta \in (0, 1/2)$. Finally, if $(1 - \beta)\gamma^{med} \geq 3/4$, both common external tariffs are prohibitive ($T^m = T^a = s/2$).

Computation behind Figure 1. The median voter's value of each regime is obtained by substituting the equilibrium tariffs into (2): under MFN and FTA these are equations (7), (9), (16), and (17), evaluated at $\widehat{\gamma}_I = \widehat{\gamma}_C = \gamma^{med}$; under a CU they are the tariffs derived above. All value functions are therefore exact closed forms, up to the root of the cubic (28), which is computed by bisection to precision 10^{-14}. The ranking is evaluated on a 1201×1201 grid, and the region boundaries are then refined by bisection on the value-function differences. As a check, the closed-form CU tariffs were verified against direct best-response iteration on the primitive payoffs, with maximum discrepancy equal to the iteration's grid resolution. Replication code is available from the authors.

B Additional Figures and Tables

Figure A1. Distribution of PTA in 1840

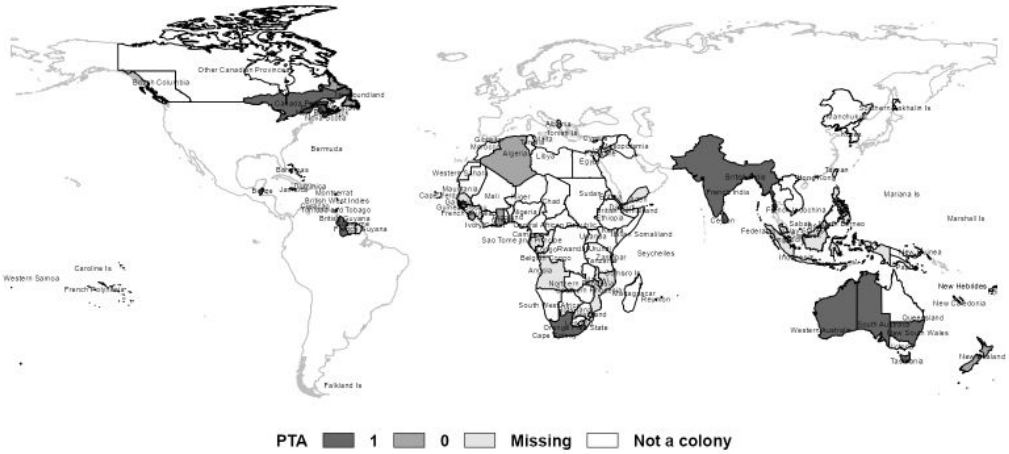


Figure A2. Distribution of PTA in 1870

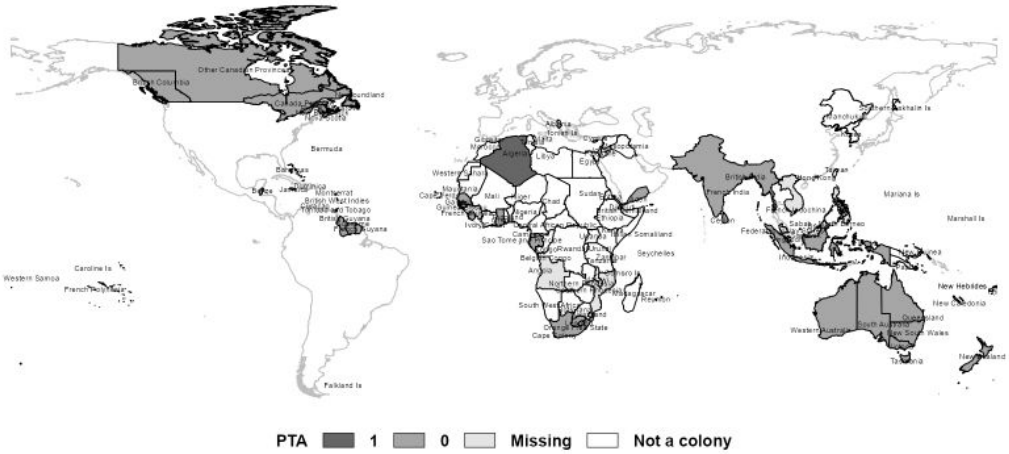


Figure A3. Distribution of PTA in 1900

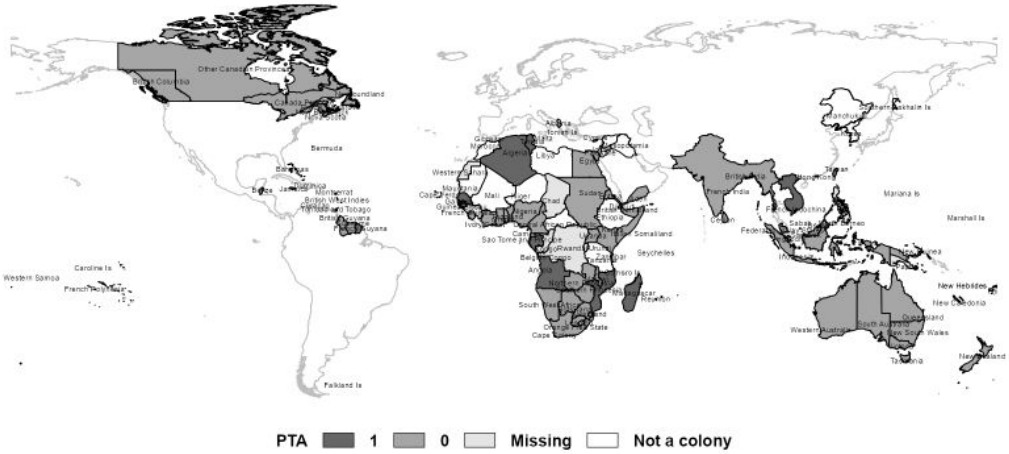
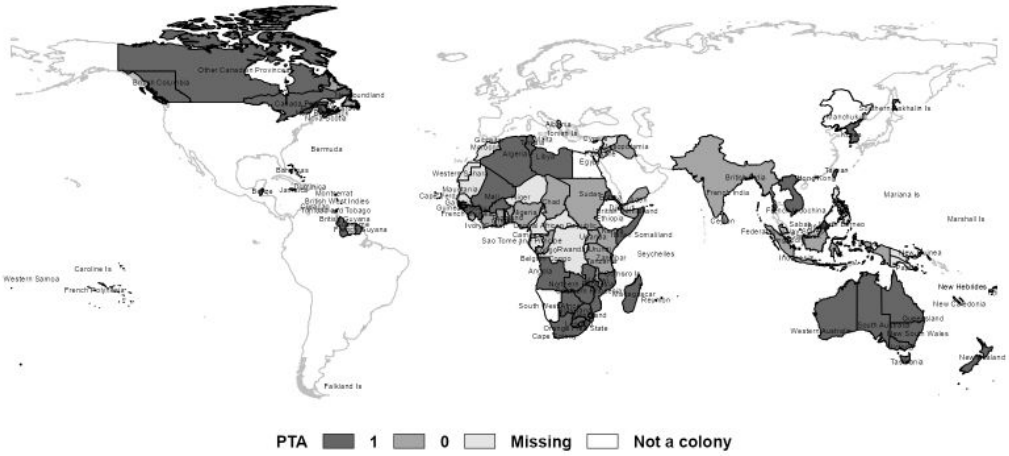


Figure A4. Distribution of PTA in 1930



C Data Sources

In this section we describe the data sources used to construct the dependent variables (PTA and CU), the main explanatory variables of interest (VOT, beta, COMP and SettlerShare) and the controls (TradeContent, SizeAsym, DKL, SQDKL and NATURAL).

C.1 Colonization and decolonization dates, definition of colonial territories

Our initial source of information on colonization and decolonization dates is the Correlates of War (COW) "Territorial Change" dataset, which we complemented with information from the CShapes dataset, and with Internet searches. We did not include in the dataset former colonies with a population smaller than 150,000 in 2016. Our data set contains seven imperial powers (Britain, France, Germany, Japan, the Netherlands, Portugal, and Italy) and 127 colonies, listed in Table A1 alongside the years in which they enter and exit the dataset. Note that, since our dataset contains information at five-year intervals between 1815 and 1960, a colony enters the dataset in the first dataset-year after its colonization year, and exits the dataset in the first dataset-year after its decolonization year. For example, Tunisia was a French colony in 1881-1956: it is thus in our dataset in 1885-1955.

Table A1. Entry and exit by colony

Imperial power	Colony	Time frame
France	Algeria	1830-1960
France	Burkina Faso - Upper Volta	1920-1960
France	Chad	1900-1960
France	Comoro Is	1890-1960
France	Congo	1880-1960
France	Dahomey - Benin	1895-1955
France	Djibouti - French Somaliland	1885-1960
France	French Cameroon	1920-1960
France	French Establishments in Oceania - Polynesia	1845-1960
France	French Guinea	1845-1955
France	French Guyana	1820-1960
France	French India	1820-1950
France	French Indochina	1870-1945
France	French Sudan - Mali	1905-1960
France	French Togoland	1925-1960
France	Gabon	1840-1960
France	Guadeloupe	1815-1960
France	Ivory Coast	1890-1960
France	Madagascar	1885-1960

France	Martinique	1815-1960
France	Morocco	1915-1955
France	New Caledonia	1855-1960
France	New Hebrides - Vanuatu	1910-1960
France	Reunion	1815-1960
France	Senegal	1820-1960
France	Syria	1920-1945
France	Tunisia	1885-1955
Germany	German Cameroon	1885-1915
Germany	German Togoland	1885-1915
Germany	New Guinea (German New Guinea) (Kaiser Wilhelmsland)	1885-1910
Germany	South West Africa (German West Africa) (Namibia)	1885-1915
Germany	Tanzania - Tanganyika - German East Africa	1895-1915
Italy	Albania	1940-1940
Italy	Eritrea	1885-1940
Italy	Ethiopia	1940-1940
Italy	Libya (Tripolitania, Cyrenaica, Fezzan)	1915-1940
Italy	Somalia - Italian Somaliland	1890-1940,1950-1960
Japan	Caroline Is	1915-1945
Japan	Korea	1905-1945
Japan	Kwangtung Territory	1905-1945
Japan	Manchukuo	1935-1945
Japan	Mariana Is	1920-1945
Japan	Marshall Is	1915-1945
Japan	Southern Sakhalin Is	1905-1945
Japan	Taiwan	1895-1945
Netherlands	Curacao	1815-1950
Netherlands	Indonesia	1820-1945
Netherlands	Suriname	1820-1950
Portugal	Angola	1815-1960
Portugal	Cape Verde	1815-1960
Portugal	Guinea-Bissau	1815-1960
Portugal	Mozambique	1815-1960
Portugal	Sao Tome and Principe	1815-1960
United Kingdom	Aden	1840-1960
United Kingdom	Anglo-Egyptian Sudan	1900-1955
United Kingdom	Antigua	1815-1960
United Kingdom	Bahamas	1815-1960
United Kingdom	Barbados	1815-1955
United Kingdom	Belize - British Honduras	1815-1960
United Kingdom	Bermuda	1815-1960
United Kingdom	Botswana	1885-1960
United Kingdom	British Columbia	1860-1930
United Kingdom	British Guyana	1815-1960
United Kingdom	British India	1815-1945
United Kingdom	British Somaliland	1885-1960
United Kingdom	British Togoland	1925-1955

United Kingdom	Brunei	1890-1960
United Kingdom	Canada Province	1815-1930
United Kingdom	Cape Colony	1815-1930
United Kingdom	Ceylon	1815-1945
United Kingdom	Cyprus	1880-1960
United Kingdom	Dominica	1815-1960
United Kingdom	Egypt	1885-1920
United Kingdom	Falkland Is	1835-1960
United Kingdom	Federated Malay States	1900-1955
United Kingdom	Fiji Is	1875-1960
United Kingdom	Gambia	1815-1960
United Kingdom	Ghana - Gold Coast	1815-1955
United Kingdom	Gibraltar	1815-1960
United Kingdom	Grenada	1815-1960
United Kingdom	Hong Kong	1840-1960
United Kingdom	Ionian Is	1815-1860
United Kingdom	Jamaica	1815-1960
United Kingdom	Kenya	1895-1960
United Kingdom	Lesotho	1870-1960
United Kingdom	Malawi - Nyasaland	1895-1960
United Kingdom	Malta	1815-1960
United Kingdom	Mauritius	1815-1960
United Kingdom	Mesopotamia	1920-1930
United Kingdom	Montserrat	1815-1960
United Kingdom	Natal	1845-1930
United Kingdom	New Brunswick	1815-1930
United Kingdom	New Hebrides - Vanuatu	1910-1960
United Kingdom	New South Wales	1815-1935
United Kingdom	New Zealand	1840-1945
United Kingdom	Newfoundland	1815-1945
United Kingdom	Nigeria	1885-1960
United Kingdom	Northern Rhodesia	1890-1960
United Kingdom	Nova Scotia	1815-1930
United Kingdom	Orange Free State	1845-1930
United Kingdom	Other Canadian Provinces	1870-1930
United Kingdom	Palestine	1920-1945
United Kingdom	Prince Edward Is	1815-1930
United Kingdom	Queensland	1860-1935
United Kingdom	Sabah - North Borneo	1890-1940
United Kingdom	Sarawak	1890-1960
United Kingdom	Seychelles	1815-1960
United Kingdom	Sierra Leone	1815-1960
United Kingdom	Singapore	1830-1960
United Kingdom	South Australia	1840-1935
United Kingdom	South West Africa	1915-1930
United Kingdom	Southern Rhodesia	1890-1960
United Kingdom	St Christopher-Nevis	1815-1960

United Kingdom	St Helena Is	1815-1960
United Kingdom	St Lucia	1815-1960
United Kingdom	St Vincent	1815-1960
United Kingdom	Swaziland	1895-1960
United Kingdom	Tanzania - Tanganyika - German East Africa	1920-1960
United Kingdom	Tasmania	1825-1935
United Kingdom	Transvaal	1880-1930
United Kingdom	Trinidad and Tobago	1815-1955
United Kingdom	Uganda	1895-1960
United Kingdom	Victoria	1855-1930
United Kingdom	Western Australia	1830-1935
United Kingdom	Western Samoa	1915-1945
United Kingdom	Zanzibar	1895-1960

A number of rules had to be adopted to deal with colonies whose borders changed over time, or which joined other colonies in forming larger colonial entities, or which split into multiple smaller entities. First, in our baseline analysis, we did not attempt to keep the borders of individual colonies constant over time. This means that the same colony may refer to different territories in different years. For example, "Sierra Leone" is in the dataset in 1815-1960 (since it became a British Crown colony in 1808, and obtained independence in 1961) but the territory it refers to was very different in 1815 (when it amounted to little more than Freetown and a few other coastal forts) and 1960 (when it roughly coincided with today's territory of Sierra Leone). This strategy is driven by the fact that our data sources (on trade policy and imports and exports, but also on European or Japanese settlers) typically refer to the territory of a colony as defined at the time that the data was released.[37]

Second, when a group of colonies merged into a bigger colonial entity (such as a federation) midway through our dataset, we adopted two different strategies, depending on the context and on data availability. On the one hand, if we had enough data on the trade policy of the individual colonies before they were merged, then we kept them as separate entities throughout, attributing to each of them the common trade policy of the bigger entity after this was formed (if appropriate). For example, New South Wales and Victoria were separate colonies before they federated into Australia in 1901, and we have data on their trade policy in this period. We thus consider them as separate colonies until they exit from the sample in 1935 (the first dataset-year after Australia obtained formal independence). This implies that Australia, as a whole, is not in our dataset. Similarly, we do not have South Africa in the dataset (but we have Cape Colony, Natal, Orange Free

[37]The data on population (and thus on total GDP) is harder to deal with, as it sometimes refers to contemporary boundaries, and sometimes to modern ones. We discuss this issue in greater detail in Section 1.4 below.

State, and Transvaal), nor French Equatorial Africa or West Africa (for both of which we have instead the various component parts).[38] On the other hand, if we did not have data on the trade policy of the individual colonies before they merged, or if such colonies were small or existed only for a few years before merging, then we only kept the bigger entity in the data set. For example, "British India", which throughout our period included modern-day Pakistan, India, and Bangladesh, also included Upper and Lower Burma in, respectively, 1858-1937 and 1886-1937. We did not have separate trade policy information for these two colonies before or after they became part of British India, and hence we did not include them as separate entities in the dataset. In another example, the colony of French Indochina (an entity encompassing modern-day Cambodia, Laos, and Vietnam) was started with the French occupation of Cochinchina in 1867 (modern-day southern Vietnam) and completed with the annexation of Cambodia (1884), Northern Vietnam (1887), and Laos (1893). Since its component parts predated it by only a few years, we only included "French Indochina" in the dataset (since 1870, i.e., the first dataset-year after 1867). The case of Canada is a mixture of the two strategies. Following the second strategy, since we did not have separate trade policy data for Quebec and Ontario before they merged into the Province of Canada in 1841, we only included the Province of Canada since 1815. Following the first strategy, even though the Province of Canada, British Columbia, New Brunswick, Nova Scotia and Prince Edward Island joined into Canada in 1867-1873, we included them as separate colonies till they exit the dataset in 1935 (the first dataset-year after Canada became fully independent).[39]

Third, in a few cases, a colony was split into multiple smaller entities. For example, this was the case of German Cameroon and Togoland, each of which was split into a British and a French part after World War I. In this case, we let the bigger entity exit the dataset in the first dataset-year after it was split, with the resulting, smaller entities subsequently entering in the dataset. So, German Togoland is in the dataset in 1885-1915, whereas British and French Togoland are included in, respectively, 1925-1955 and 1925-1960.[40]

C.2 Trade policy and trade flows (PTA, CU, Beta and Trade-Content)

Data on trade policy and trade flows was used to construct our dependent variables, $PTA_{m_j j,t}$ and $CU_{m_j j,t}$, as well as $Beta_{m_j j,t}$ (our proxy for model parameter β) and control

[38] Other important examples of this case include the British Leeward and Windward Islands.

[39] For robustness checks, we prepared an alternative dataset in which Australia, Canada, and South Africa enter the dataset in the first dataset-year after they were created (that is in 1905, 1870, and 1910), with their component parts existing the dataset in the first dataset-year after they joined the bigger entity.

[40] British and French Togoland do not enter the dataset already in 1920, since at this time they were merely League of Nations Class B Mandates. Only in 1922 were they officially placed under British and French rule.

variable $TradeContent_{m_j j,t}$. We begin by describing preliminary work and data sources in Section C.2.1 and we then describe the construction of these variables in Section C.2.2.

C.2.1 Preliminary work and sources of data

For each colony j, its imperial power m_j, and dataset year t, we first coded two indicator variables, $PTA1_{m_j j,t}$ and $PTA2_{m_j j,t}$, describing the trade policy regimes that existed within that pair and in that year. Specifically, $PTA1_{m_j j,t}$ is an indicator variable for whether or not imperial power m_j granted a tariff preference to most products imported from its colony j in year t. Conversely, $PTA2_{m_j j,t}$ is an indicator variable for whether or not colony j granted a tariff preference to most products imported from its imperial power (m_j) in year t.

To code these variables, we collected a large amount of information on the import tariffs imposed by the imperial powers and colonies, as well as on bilateral trade flows between the two (more details on the sources are reported further down in this section). When detailed product-level data was available, to determine the value of $PTA1_{m_j j,t}$ (and symmetrically that of $PTA2_{m_j j,t}$), an effort was made to determine whether or not m_j granted a tariff preference to j's most important exports to m_j (jointly accounting for at least 50% of j's exports to m_j). If the answer was affirmative, then $PTA1_{m_j j,t}$ was coded as one, otherwise it was coded as zero. In many cases, the existence of a broad preferential policy made such attention to detail not necessary, e.g., when the sources made it clear that m_j granted a tariff preference to all products imported from j. In the few cases in which no or partial product-level data was available, and a broad preferential policy was not clearly in place, a judgment call had to be made to determine the value of $PTA1_{m_j j,t}$ and $PTA2_{m_j j,t}$.

When an important change in trade policy occurred in a given year, resulting in a change in $PTA1_{m_j j,t}$ and/or $PTA2_{m_j j,t}$, we first recorded these changes in the first dataset-year after the change occurred. Within each $m_j j$ pair, when either of $PTA1_{m_j j,t}$ and $PTA2_{m_j j,t}$ were coded in two non-consecutive dataset-years, but were missing for a few years in between, we assumed that the policy in place in the first dataset-year continued until the second dataset-year. For example, if we had data for 1870 and 1890, but no data for 1875, 1880, and 1885, then we assumed that the policy in place in 1870 was also in place in 1875, 1880, and 1885. We follow this procedure within, but not across, each of the three macro-periods in our dataset (1815-1910, 1920-1935, and 1945-1960).[41] This was based on the logic that major changes in trade policy (of the kind required to lead to a change in $PTA1_{m_j j,t}$ and $PTA2_{m_j j,t}$) tended to happen rarely. Since our data

[41] So, if we have data for 1900 and 1925, we only assume that the policy in place in 1900 stayed in place until 1910, while 1915 and 1920 are missing. Moreover, we do not assume that policies adopted during the World Wars continued over time. So, if we only have data for 1915 and 1930, then we leave 1920 and 1925 as missing.

collection was very careful, we trust it to have identified all major changes in trade policy.

We also constructed an indicator variable for whether imperial power m_j and colony j had a common external tariff in year t ($CET_{m_j j,t}$). More specifically, we coded $CET_{m_j j,t} = 1$ if and only if the imperial power and the colony explicitly coordinated in imposing the same tariffs on imports from third countries, while keeping trade flows between themselves untaxed.

The coding of $PTA1_{m_j j,t}$, $PTA2_{m_j j,t}$ and $CET_{m_j j,t}$ was based on a large amount of information on import tariffs in the imperial powers and colonies, as well as on product-level and aggregate bilateral and total trade flows. The initial sources of data on trade flows were the pre-existing datasets listed in Table A2.

Dataset	Countries	Information available	Maximum coverage
CEPII	All	bilateral and total	1827-2014
RICardo	All	bilateral and total	1800-1938
Correlates of War	All	bilateral and total	1870-2014
Federico and Tena-Junguito (2019)	All	Total	1800-1938
Hungerland and Wolf (2021)	Germany	Full breakdown	1880-1913
Federico et al. (2011)	Italy	Full breakdown	1862-1950

Table A2. Sources of data on trade flows

These data are denominated in current GBP (CEPII, RICardo), USD (Correlates of War, Federico and Tena-Junguito 2019) or national currencies (Hungerland and Wolf 2021 and Federico et al. 2011). We convert the data to be denominated in current dollars, using the exchange rates provided in CEPII, Federico and Tena-Junguito (2019), and Historicalstatistics.org.

Information on import tariffs, as well as information on trade flows which was not available from the above datasets, was found in a large number of primary and secondary sources. In some cases, these covered multiple (if not all) empires. By far the most important source of this kind was US Tariff Commission (1922). Other secondary sources with information on multiple empires were Bairoch and Burke (1989), Chase (2004, 2009), and Root (1906). In many other cases, the sources were empire-specific. The main such sources for each empire were as follows.

British Empire. Main primary sources: Colonial Blue Books, various colonies and years (1824-1940), available online at britishonlinearchives.com; Colonial Reports, various colonies and years; Statistical Abstracts for the British Colonies, various years (1850-1937); UK Statements of Trade, various years (1852-1939); UK Statutes (especially for the period 1815-1855). Main secondary sources: Bernard (1929), Federation of British Industries (1958), Fuchs (1905), McGuire (1951), Mitchell (1998), Mitchell (1983), Page (1919a,b), Shipping World Year Books (1889-1933).

Dutch Empire. Main secondary source: Vanderbosh (1931), De Zwart et al. (2024).

French empire. Main primary sources: *Tableaux Général du Commerce et de la Navigation*, various years (1897-1928); *Tableaux Général du Commerce Extérieur*, various years (1929-1960); *Annuaire Statistique de la France*, various years (1878-1961). Main secondary sources: by far the most important secondary source was Girault (1916). Other important sources were: Feraud (1955), Hoffherr et al. (1939), Mitchell (1998), Nogaro and Moye (1931), Tournan (1928).

German Empire. Main primary sources: various tariff setting laws (1870-1913), available online at https://de.wikisource.org. Main secondary sources: *Deutsches Kolonial Handbuchs*, various years (1896-1913); *Deutsches Kolonial Lexikon* (1920).

Italian Empire. Main primary sources: *Movimento Commerciale del Regno d'Italia*, various years (1891-1920); various tariff setting laws (1911-1937), available online at https://www.gazzettaufficiale.it. Main secondary sources: Calderoni (1961), Marcelli (1912), Nicali and Favale (2004).

Japanese Empire. Main secondary sources: Ayuso-Díaz and Tena-Junguito (2020), Grajdanzev (1942) and Yamazawa (1975).

Portuguese Empire. Main secondary sources: Clarence-Smith (1985), Lains (1998), Mitchell (1998), and Valério (2001).

C.2.2 Construction of key variables

Building on $PTA1_{m_j j,t}$ and $PTA2_{m_j j,t}$, we construct a single indicator variable, $PTA_{m_j j,t}$, describing whether or not imperial power m_j and colony j had a preferential trade arrangement in place in year t. In our baseline analysis, we adopt a "strict" definition according to which $PTA_{m_j j,t} = 1$ if and only if $PTA1_{m_j j,t} = PTA2_{m_j j,t} = 1$; $PTA = 0$ if $PTA1_{m_j j,t} = 0$, or $PTA2_{m_j j,t} = 0$, or both; and $PTA_{m_j j,t} = .$ otherwise. In robustness checks, we have relaxed this requirement and considered an alternative, "weaker" definition, whereby a preferential trade arrangement is additionally assumed to have been in place if $PTA1_{m_j j,t} = 1$ and $PTA2_{m_j j,t} = .$ The variable $CU_{m_j j,t}$ coincides with the dummy $CET_{m_j j,t}$ described above.

To construct the explanatory variable $Beta_{m_j j,t}$ (a proxy for the share of colonial profits captured by citizens of the imperial power) in colony j and year t, we use the share of j's exports going to its imperial power, m_j, in that year. The reasoning is that colonies can be partly understood as "outlying agricultural or manufacturing establishments" of which the goods were sent and sold in the mother country to benefit the proprietors there (Greaves, 1954; Mill, 1884). Thus,

$$\text{Beta}_{m_j j,t} = Export_{jm_j,t}/Export_{j,t}.$$

To validate this measure, we check its capacity to predict the imperial power's share of the colonial FDI stock for the first year for which we have data on such share, 1967.

For this year, Kentor and Boswell (2003) give us the imperial power's share of colonial FDI for 30 colonies (or former colonies) of the imperial powers in our dataset, for which we have information on Beta for 26 colonies. When we regress this share on $\text{Beta}_{m_j j,t}$ (18 measured in 1960, 4 in 1955, 3 in 1945, and 1 in 1930) we obtain a coefficient on $\text{Beta}_{m_j j,t}$ that is equal to 0.38 and statistically significant at the 1% level (with an R2 of 0.28). While this is only indicative evidence given the relatively small sample, it provides reassurance that our proxy is reasonable.

The variable $TradeContent_{m_j j,t}$ measures the importance of colony j for imperial power m_j's trade. It is defined as the average share of the colony in the imperial power's total imports and exports:

$$TradeContent_{m_j j,t} = \left(Exports_{m_j j,t}/Exports_{m_j,t} + Imports_{m_j j,t}/Imports_{m_j,t}\right)/2.$$

When either $Beta_{m_j j,t}$ or $TradeContent_{m_j j,t}$ were missing in between two non-missing observations, we filled them in by interpolation. For colonies that were parts of bigger entities (such as the colonies that formed Canada or South Africa) and missed either of these two variables in the last period in which they appear in the dataset, we additionally extrapolated using the trend of the bigger entity.

C.3 Suffrage (VOT)

The variable $VOT_{m_j,t}$ captures the share of imperial power m_j's adult population with the right to vote. We take this measure from the V-DEM dataset, and particularly from variable v2x_suffr, but make two adjustments. First, we replace the suffrage rate with 81% for the UK from 1919 to 1928. This is because the UK gave universal suffrage to women only in 1928, and not in 1919 as implied by V-DEM.[42] Second, we smooth out a temporary change in the extent of the franchise in Portugal during WWI.[43]

C.4 GDP, population and industrialization levels (COMP, SizeAsym, DKL, and SQDKL)

To construct the variables $COMP_{m_j,t}$, $SizeAsym_{m_j j,t}$, $DKL_{m_j j,t}$ and $SQDKL_{m_j j,t}$, we need data on real GDP and per capita GDP, both for the imperial powers and for the colonies, as well as on the share of world manufacturing output produced in the imperial powers.

[42]The number 0.81 is calculated based on the following information from Wikipedia: there were 21.4 million voters in 1919 – 8.5 female and 12.9 male – and the change in 1928 added another 5 million to the electorate: this implies a 1919 share of the adult population with the right to vote equal to 81%= (8.5+12.9)/(8.5+12.9+5)*100.

[43]Following the 1910 Portuguese revolution, which extended the franchise to male adults who were literate or head of household, a temporary more restrictive electoral law was adopted in 1913, whereas universal male suffrage was reintroduced in 1918. For more details see de Almeida (2010).

Data on per capita GDP and population (and hence on total GDP) in constant 2011 USD is available from the Maddison dataset for all the imperial powers in our dataset, and for many former colonies (see Bolt and Van Zanden 2020). Coverage of the colonies is incomplete, however, with some of them missing altogether, and others missing data for a number of years, especially in the earlier times. To compile our data in these cases, we proceeded as follows.

For per capita GDP, as a first step, when data on a colony in a given year (e.g. British Columbia in 1890) is not available in Maddison, which however does have data, for that same year, on a larger entity that the colony belongs to (e.g. Canada in 1890), then we attributed to the colony the per capita GDP of the bigger entity. When instead we have in our dataset a federation of colonies (e.g. French Indochina), and Maddison only has data on at least some of the component parts of this federation (e.g. Cambodia, Vietnam, Laos), then, for a given year, we calculated the federation's GDP per capita as the weighted (by population) average of the per capita GDP of its component parts in that year. After this first step, we had per capita GDP data for a vast majority of colonies in our dataset, for at least some years. As a second step, for each colony, we interpolated between subsequent observations with gaps in between. Next, we extrapolated between the last available observation for each colony and the last year that the colony appeared in the dataset, and between the first year in which the colony appeared in the dataset and the first available observation, using per capita GDP growth rates for the region that the colony belongs to (which is available from Maddison for eight regions).[44] Finally, for the few colonies for which we could not find any data on per capita GDP, we attributed to them the weighted (by population) average of per capita GDP of any colony for which we had data in the same Maddison region and empire cell. If no data was available in that cell, we then used the average of colonies of any empire in the same Maddison region. If data was still not available, then we used the average per capita GDP of neighboring countries.[45] Finally, we calculate the five-year moving average of per capita GDP to smooth the random fluctuations in the data.

For population, we could follow the same attribution strategy used for per capita GDP, except that we could infer the population of a larger entity from data available in Maddison for its component parts (e.g. we could infer the population of French Indochina by summing the population of Cambodia, Laos and Vietnam). When data from Maddison was not available, we thus collected additional population data from a variety of sources, including contemporary sources (Statistical Abstracts for the British Colonies, 1850-1937;

[44]The Maddison dataset provides data on per capita GDP in constant 2011 USD for eight regions, every ten years in 1820-1960 (see (Bolt and Van Zanden, 2020)). We computed yearly regional growth rates assuming that per capita GDP growth was constant within each region-decade, and used such rates to inform our extrapolation procedure.

[45]This last case applies to the South American colonies of British Guyana, Falkland Is, French Guyana, Dutch Curacao, and Suriname. We have no per capita GDP data for any of these colonies, and we thus use data for Brazil, Colombia, and Venezuela.

Tableaux Général du Commerce et de la Navigation, 1897-1928; Colonial Blue Books; Worcester 1823) and modern datasets such as Frankema and Jerven (2014), Mitchell (1983), Mitchell (1998) and V-DEM (Coppedge et al. 2021). We then used the same interpolation, extrapolation, and smoothing strategies used for per capita GDP.[46]

Finally, data on the share of world manufacturing output produced by the imperial powers is obtained from Bairoch (1982), Tables 10 and 13.

The variable $COMP_{m_j,t}$ compares industrial output in imperial power m_j to that of the other imperial powers.[47] To proxy for industrial output, we use either real GDP or the imperial power's shares of world manufacturing output, thus obtaining two alternative measures of $COMP_{m_j,t}$. These are defined as follows:

$$COMP^{GDP}_{m_j,t} = \log \frac{\left(\sum_{k \neq m_j} RGDP_{k,t}\right)}{RGDP_{m_j,t}}$$
$$COMP^{Manu}_{m_j,t} = \log \frac{\left(\sum_{k \neq m_j} ManuShare_{k,t}\right)}{ManuShare_{m_j,t}}.$$

The variable $SizeAsym_{m_j j,t}$ measures the dissimilarity in total economic size between colony j and its imperial power m_j. It is defined as

$$SizeAsym_{m_j j,t} = \log \left(1 - \left(\frac{RGDP_{m_j,t}}{RGDP_{m_j,t} + RGDP_{j,t}}\right)^2 - \left(\frac{RGDP_{j,t}}{RGDP_{m_j,t} + RGDP_{j,t}}\right)^2\right),$$

and takes a value between log(1/2) (when m_j and j have equal economic size) and 0 (when one is infinitely large compared to the other).

Finally, the variable $DKL_{m_j j,t}$ measures the dissimilarity in real per capita GDP between j and m_j,

$$DKL_{m_j j,t} = \left| log(RGDPPC_{m_j,t}) - log(RGDPPC_{j,t}) \right|,$$

while $SQDKL_{m_j j,t}$ is the square of $DKL_{m_j j,t}$.

C.5 European and Japanese settlers (SettlerShare)

Our starting point for data on European settlers (Japanese settlers in the Japanese colonies) were the datasets indicated in Table A3. We then complemented these sources using a

[46]Generally, contemporary sources refer to contemporary boundaries, and so do modern sources that rely on those (such as Mitchell 1983 and Mitchell 1998). In contrast, modern datasets such as Maddison, Frankema and Jerven (2014) and Coppedge et al. 2021, refer by construction to modern boundaries. We make sure to only use one type of source for each individual colony.

[47]In constructing this variable, we consider nine imperial powers important in manufacturing production: the seven in our dataset, plus Belgium and the United States (two other imperial powers with a large manufacturing base in the 19th century).

range of primary and secondary sources, which were often colony-specific (e.g. colonial censuses for Cyprus, the Falkland Islands, Gibraltar, Palestine, South Africa, Malta, and Montserrat; Annual Colonial Reports for other British colonies; Annual Reports to the League of Nations on the administration of the South Sea Islands under Japanese mandate for Japanese colonies in the South Pacific, etc.). When multiple data points were available for a colony, we interpolated between them. Additionally, we extrapolated from/to the start/end of our period assuming that the share of settlers would stay the same throughout these periods.

Source	Description
Acemoglu et al. (2001)	1900 and 1975
Easterly and Levine (2016)	one/multiple data points in 1540-1990
Angeles (2007)	measured at colonial apogee
McEvedy et al. (1978)	1945 (Korea and Taiwan)

Table A3. Source of settler share data

C.6 Distance (NATURAL)

To measure the distance between an imperial power and a colony we use the CEPII's time-invariant *Distw* variable, defined as the city population-weighted mean of the great-circle distance between the two countries (see Fouquin and Hugot (2016)). In the case of a few British colonies, for which distance information was not available, we approximated using distance to the larger entity it belongs to, or to neighboring colonies. Specifically, the distance to Nova Scotia, British Columbia, New Brunswick, and Prince Edward Is is taken to be the same as the distance to Canada. For Sarawak, we used distance to the Federated Malay States; for Leeward Islands, Dominica, and Montserrat, we used Antigua; for Grenada and Windward Islands, we used St Lucia; for Demerara and Essequibo, we used British Guyana; and for Transvaal, we used South Africa.

The variable $NATURAL_{m_j j,t}$ is defined as:

$$NATURAL_{m_j j,t} = \log\left(\frac{1}{distance_{m_j j,t}}\right),$$

where $distance_{m_j j,t}$ is measured as described above.