Two Centuries of Bilateral Trade and Gravity data: 1827-2014[1]

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Abstract

This document provides a detailed description of the Historical Bilateral Trade and Gravity Data set (TRADHIST) that was put together for Fouquin and Hugot (2016) and designed for historical investigations of international trade. The data set is available on the website of CEPII. Specifically, the data set has been built to explore the two modern waves of globalization: the First Globalization of the nineteenth century and the post-World War II Second Globalization. The data set gathers five types of variables: i) bilateral nominal trade flows, ii) country-level aggregate nominal exports and imports, iii) nominal GDPs, iv) exchange rates, and v) bilateral factors that are known to favor or hamper trade, including geographical distance, common borders, colonial and linguistic links, as well as bilateral tariffs. This data is unique both in terms of temporal and geographical coverage. Overall, we gather more than 1.9 million bilateral trade observations for the 188 years from 1827 to 2014. We also provide about 42,000 observations on aggregate trade, and about 14,000 observations on GDPs and exchange rates respectively.

Keywords: Globalization, Trade costs, Border effect, Distance effect
JEL Classification: F14, F15, N70

[1]We are grateful to Béatrice Dedinger for giving us access to the RICardo data set as well as Sylvie Leduc and Sophie de Salée for outstanding research assistance. This research received funding from Pontificia Universidad Javeriana under convocatoria VRI 04: Trade Costs and the Two Globalizations: A Global and Latin American Perspective, 1827-2014.
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1. Introduction

This document provides a detailed description of the TRADHIST data set that was put together for Fouquin and Hugot (2016) and designed for historical investigations of international trade. The data set is available on the website of CEPII. Specifically, the data set has been built to explore the two modern waves of globalization: the First Globalization of the nineteenth century and the post-World War II Second Globalization. The dataset gathers five types of variables: i) bilateral nominal trade flows, ii) country-level aggregate nominal exports and imports, iii) nominal GDPs, iv) exchange rates, and v) bilateral factors that are known to favor or hamper trade, including geographical distance, common borders, colonial and linguistic links, as well as bilateral tariffs.[2] This data is unique both in terms of temporal and geographical coverage.

We adopt a systematic approach to collecting all of this data, to the exception of tariffs. For each variable, we merge the pre-existing (secondary) sources with additional data directly extracted from primary sources, including government publications, books and academic articles. In the end, we gather more than 1.9 million bilateral trade observations for the 188 years from 1827 to 2014. We also provide about 42,000 observations on aggregate trade (i.e. total imports and exports at the country level), and about 14,000 observations on GDPs and exchange rates respectively. The country pairs for which we collected bilateral trade are also associated with the great-circle distance and the shortest maritime distance between them, as well as with a set of dummy variables reflecting colonial and linguistic links. Nominal values have been systematically converted to the British pound sterling in order to make data internationally comparable.

Our most significant contribution is to expand the available bilateral trade data, both in terms of temporal and geographical coverage. Of the 1.9 million bilateral trade observations, more than 1.6 million concentrate on the 1948-2014 period; and about 97% of these observations comes from the Direction of Trade Statistics data set (International Monetary Fund, 2002 and 2015). Our contribution therefore concentrates on the period prior to 1948, for which we provide about 185,000 new observations, out of the 240,000 observations we report. For this period, we more than quadruple the amount of data available.

The structure of the data is bilateral: each observation pertains to a specific trade flow in a given year. Each observation is therefore country-pair, direction, and year-specific. The resulting panel is highly unbalanced, as the number of available bilateral trade flows dramatically increases over time. The origin and the destination country are respectively identified by the iso_o and the iso_d variables. The monadic variables – that are only country and year-specific – are duplicated whenever needed and attached to the origin or the destination country accordingly. Variables pertaining to the origin (destination) country are identified by the suffix $_o$ ($_d$). These variables include aggregate exports and imports, GDP and exchange rate.

Table 1 provides a summary of the main variables and Table 10 describes the variables.

[2] We also provide about 1,500 observations on aggregate tariffs, at the country level.

	Bilateral trade	Total exports	Total imports	GDP	Exchange rates	Bilateral tariffs
Dimensions	country-pair direction-year[1]	country year	country year	country year	country year	country-pair direction-year
Number of observations	1,899,690	21,080	20,864	14,102	14,381	8,722
Number of country pairs	42,579					410
Number of countries[2]	319	246	244	217	145	172

[1] Each year, in theory, two trade flows pertain to each country pair: the exports from country A to country B and the exports from country B to country A.

[2] We use the word "country" to designate any administrative entity for which bilateral data is reported.

Table 1 – Summary of the main variables[1]

2. Bilateral trade

Sources

We provide more than 1.9 million observed bilateral trade observations, of which about 185,000 points were directly collected from primary sources.[3] These data points are themselves extracted from about 250,000 observations that were collected from manuscripts.[4] The data also includes about 30,000 observations from the RICardo project (Dedinger and Girard, 2017).[5] The left panel of Figure 1 reports the share of each source for the entire period. The right panel focuses on the period before 1948.[6]

Figure 2 details the sources from which the bilateral trade data is drawn. In some cases, several potential sources overlap. When this is the case, we systematically favor the data extracted from primary sources. The dashed line represents the share of the data that was already available through any of the secondary sources.[7] In the end, the data set brings 75% of novel observations for the pre-1948 period. Our contribution is even larger for the period between 1827 and 1869, for which we bring 82% of novel observations.

Table 2 compares our data with three bilateral data sets of reference. In order for these comparisons to be meaningful, we compare each of these data sets with the sub-sample of our own

[3] i.e. customs archives. Records of the actual manuscript sources have been kept by the authors.

[4] This is due to the fact that each trade flow is in theory reported twice: by the exporter and by the importer. When the two sources were collected, the data set relies on the figure reported by the importer (see below for an explanation).

[5] We are particularly grateful to Béatrice Dedinger for sharing this data.

[6] 1948 is the initial year covered by the extensive data from the Direction of Trade Statistics (International Monetary Fund, 2002 and 2015).

[7] In some cases, we replace data available from secondary sources by data directly extracted from a primary source. The data can therefore be directly matched with the original document from which it is extracted.

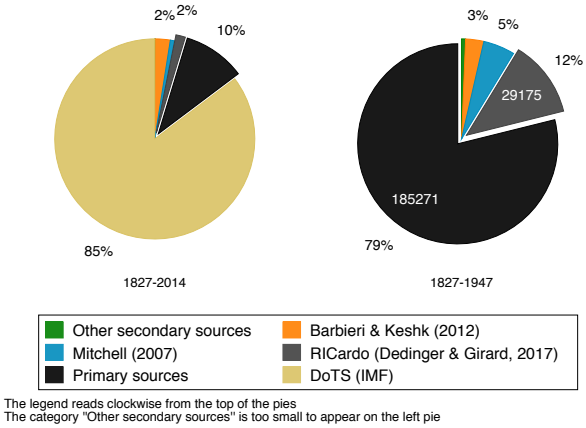

Figure 1 – Share of each source in the bilateral trade data

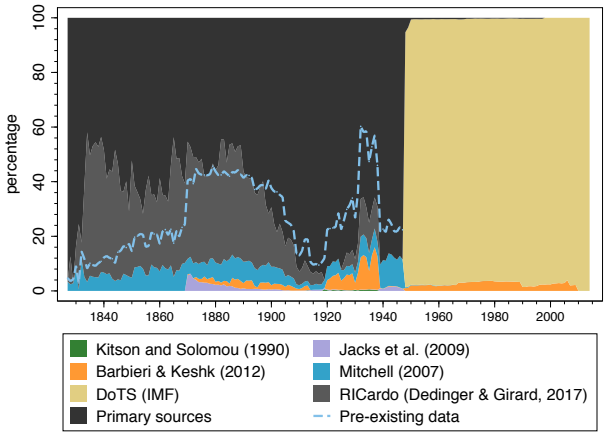

Figure 2 – Cumulative share of each source in the bilateral trade data

data that covers the same period. We restrict the samples to the years before 1948 because all the data sets rely on the same data from after that point (International Monetary Fund, 2002 and 2015). At constant time coverage and in terms of the number of observed trade flows, this data set is therefore more than twice larger than Pascali's (2017), about 11 times larger than Jacks et al.'s (2011) and more than 6 times larger than Barbieri and Keshk's (2012).

	Coverage	Our data	Pascali (2017)	Jacks et al. (2011)[1]	Barbieri and Keshk (2012)
Bilateral trade flows		**51,738**	23,863		
Country pairs	1850-1900	**2,479**	c. 1,000		
Countries		**191**	129		
Bilateral trade flows		**238,860**		21,806	38,646
Country pairs	1870-1947	**14,456**		298	2,036
Countries		**295**		27	68

[1] We use the data from which the balanced sample used in Jacks and Meissner (2011) has been extracted.

Table 2 – Comparison of the bilateral trade data with three data sets of reference, at constant time coverage

Figure 3 lists for each year prior to 1948 the reporting countries that are identified in any of the sources (primary and secondary). Similarly, Figure 4 reports the countries for which national customs statistics (primary sources) are included in the data set. This includes the data that was directly collected as well as data from the RICardo project.[8] Countries in both figures are clustered by continent.

[8]The RICardo data set reports precisely the primary source from which each data point is extracted.

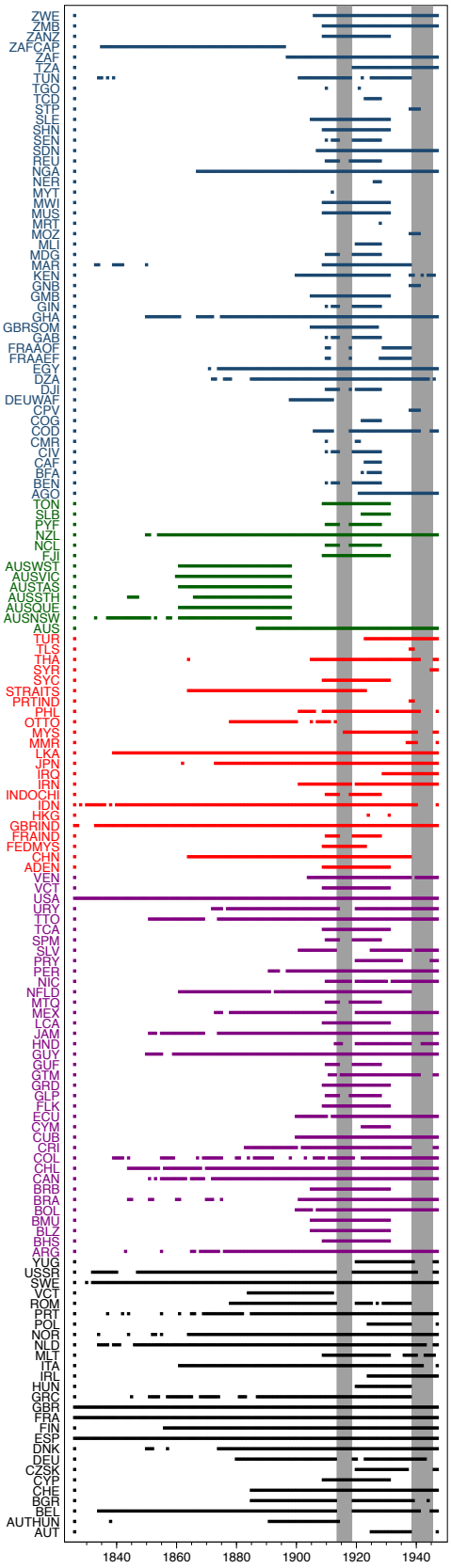

Figure 3 – Reporters from any source in the bilateral trade data: 1827-1947

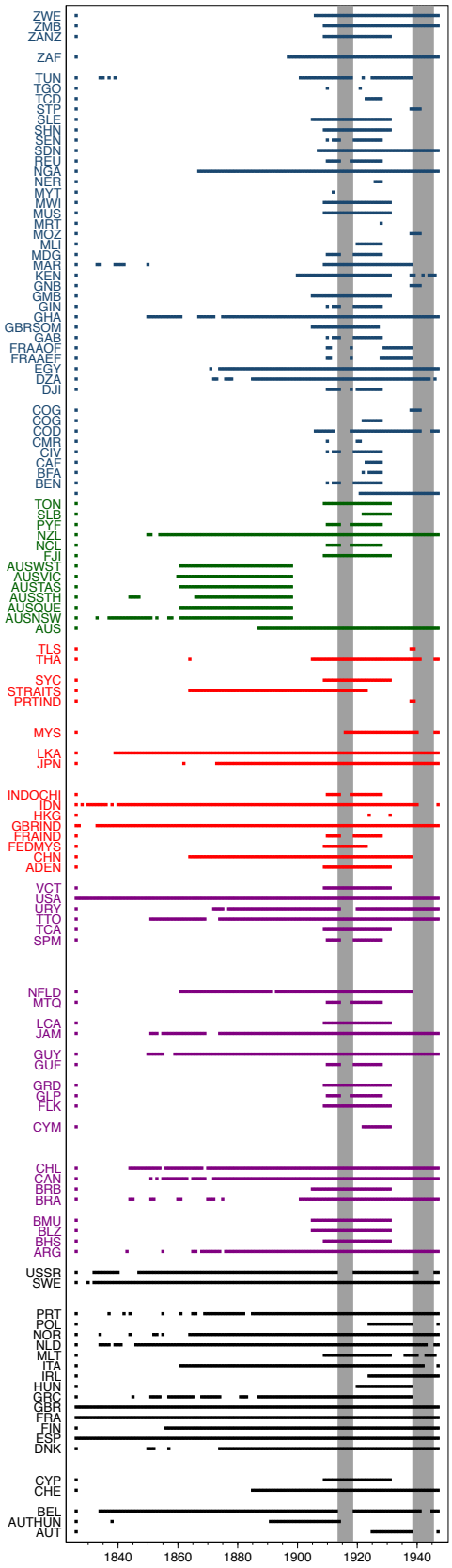

Figure 4 – Reporters from primary sources in the bilateral trade data: 1827-1947

We provide a source variable (*SOURCE_TF*) that indicates the source of each bilateral trade flow. Table 3 reports the correspondence between the codes that are used and the actual sources that can be found in the bibliography. For national sources, the first three letters correspond to the iso3 code of the reporting country (e.g. "FRA TABLEAU GAL" means that the data comes from a French source). Whenever there may be a doubt about the reporting country, a suffix is added to the source variable to make it explicit: "_IP" when the reporter is the importer and "_XP" when it is the exporter.[9] Table 3 also provides the number of observations extracted from each source as well as the initial and the last year for which the source is used.

Coverage

Figure 5 shows for each year the number of bilateral trade observations that are reported in the data set. Figure 6 restricts the sample to the period prior to 1948 and uses a linear y-axis instead of a logarithmic one. The two graphs distinguish between three types of bilateral trade observations. "Observed flow>0" denotes strictly positive observed trade flows. "Observed flow=0" denotes observed trade flows reported in the original source as nil. Data concerning the previous two categories is provided by the *FLOW* variable. The first column of Table 1 reports the number of observations for this variable. Data for the third category is provided by the *FLOW_0* variable. This variable is set to zero when it seems reasonable to assume that the lack of observation is due to the trade flow actually being equal to zero. More precisely, *FLOW_0* is set to zero for trade with all the partners of a given reporting country for which information is missing, provided that the two following conditions are satisfied: i) the country reports trade with more than 30% of all the countries reported for the year of interest (by any other country) and ii) the country reports trade with at least 10 partners. When several country names overlap and actual trade data is reported for at least one of them, *FLOW_0* is set to missing.[10] *FLOW_0* adds about 800,000 (nil) trade observations to the 1,9 million actual observations reported by the *FLOW* variable. Except for Figures 5 and 6, all the tables and figures in this document refer to the *FLOW* variable, i.e. observed trade flows.

The increasing amount of data available over time can be attributed to three factors. First, it reflects the increasing number of existing countries, which mechanically increases the number of potential international trade flows.[11] Second, the increasing number of observed flows reflects the increasing number of existing country pairs that are actually engaged in bilateral trade.

[9] This applies to the following values of the *SOURCE_TF* variable: DOTS, FRACOLO, GBRCOLO, ITW, MITC and RIC, as those sources report trade flows for several countries.

[10] For example, "French West Indies" refers to the territories under French sovereignty in the Caribbean, including Guadeloupe and Martinique. If for a given year the United Kingdom reports positive or nil trade with Guadeloupe and/or Martinique, while other countries report trade with the French West Indies as a whole, *FLOW_0* will be set to missing for British trade with the French West Indies.

[11] In particular, the break ups of the Austro-Hungarian and the Ottoman Empires after World War I significantly increase the number of countries in the sample. Similarly, the discontinuity of the mid-1990s is largely due to the break up of the Soviet Union.

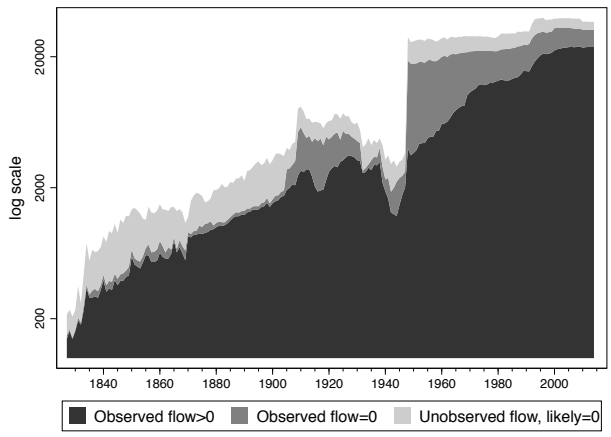

Figure 5 – Number of bilateral trade observations

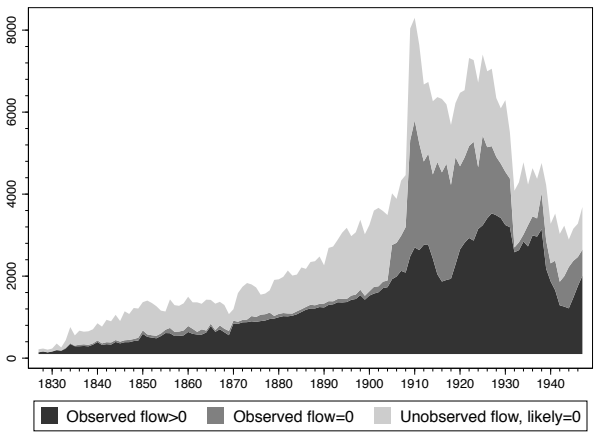

Figure 6 – Number of bilateral trade observations: 1827-1947

Third, it can be a consequence of the easier access to primary sources for recent years, due to conservation issues and the difficulties in locating historical statistics for more ancient times.

Types of trade

Whenever possible, we report data on merchandise trade, excluding trade in services, bullion and species. Special import is favored over general import data and re-exports are excluded.[12]

Choice of reporting country

Any trade flow is in principle reported by both the exporter and the importer. Whenever possible, we use the source from the importer. Indeed, importers have a greater incentive to properly assess trade flows as they are commonly subject to duties. Figure 7 shows the composition of the data by status of the reporting country, whether exporter of importer. Some secondary sources do not specify which country is the reporter, hence the "Unknown reporter" category.[13]

Sample representativeness

Figure 9 plots the sum of the bilateral data against three estimates of world trade taken from the literature (Estevadeordal and Frantz, 2003, Federico and Tena-Junguito, 2016, World Trade Organization, 2013). For most years prior to World War II, the sum of our bilateral data is greater than the existing estimates of world trade, which suggests that these estimates are underestimating the actual level of world trade.

[12]Special imports have the importing country as their final destination, whereas general trade is composed of special trade, together with transit trade.
[13]Those sources are: Mitchell (2007a,b,c), Jacks and Meissner (2011) and Barbieri and Keshk (2012).

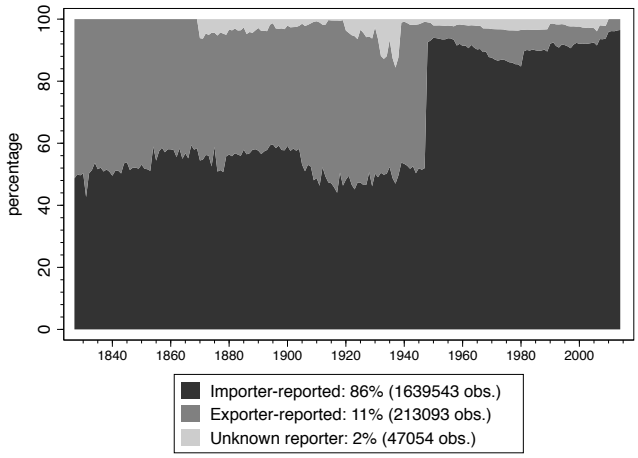

Figure 7 – Cumulative share of each reporter in the bilateral trade data

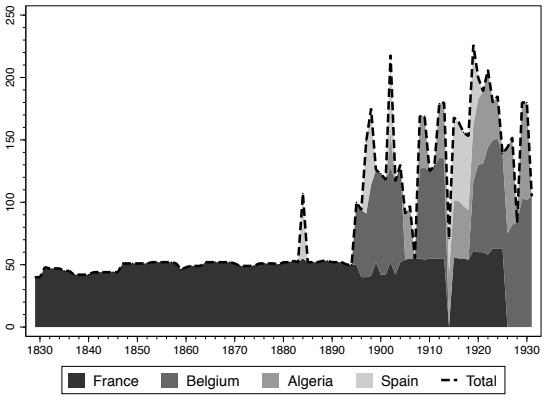

Figure 8 – Number of country pairs with available bilateral tariffs: 1829-1931

Figure 10 also plots the sum of the bilateral trade data, but this time against our data on total aggregate imports and exports, that we take as two additional proxies for total world trade.Total bilateral trade is often larger than total aggregate exports, which may sound counter-intuitive. This is because the bilateral trade data mostly relies on flows reported by importing countries, which are typically greater than the flows reported by exporters. On the contrary, Figure 10 shows that total bilateral trade generally lies closer to total aggregate imports. However, for some years, total bilateral trade is still greater than total aggregate imports. This is because both our bilateral and aggregate trade data is biased towards large countries. In turn, while in general the bilateral data includes large countries' exports to small ones (reported by the large origin country), aggregate trade data for small countries is often missing. Another interesting fact highlighted by Figure 10 is the high volatility in terms of coverage prior to 1870. This is simply because the trade reports for some countries could only be collected for certain years.[14]

Figure 11 compares the number of trade flows reported in our data to the number of theoretical trade flows, i.e. the number of pairwise combinations formed by the countries for which we report at least one trade flow. Figure 12 plots the number of observed flows as a share of the number of theoretical flows. From 1827 to 1947, our data covers between 5 and 25% of the theoretical observations. After 1948, our coverage lies between 55 and 85%.

Country definition

The country coding relies on the ISO-3 standard. The data identified by these codes pertains to national territories, excluding colonies. The countries that emerge from the unification of

[14]e.g. the spike of 1834 is due to a better coverage of British statistics, including bilateral trade with the British West Indies, and several countries of South America and Southern Europe. The spike of 1850 is due to data being available from Hamburg and the Hanseatic League for this year, as well as more extensive data for British trade.

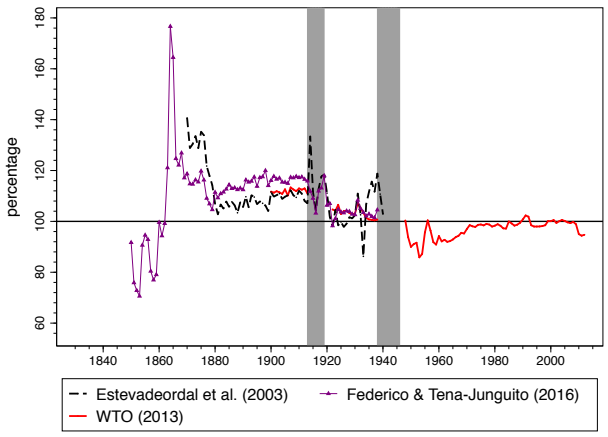

Figure 9 – Bilateral trade flows as a share of estimates of total world trade

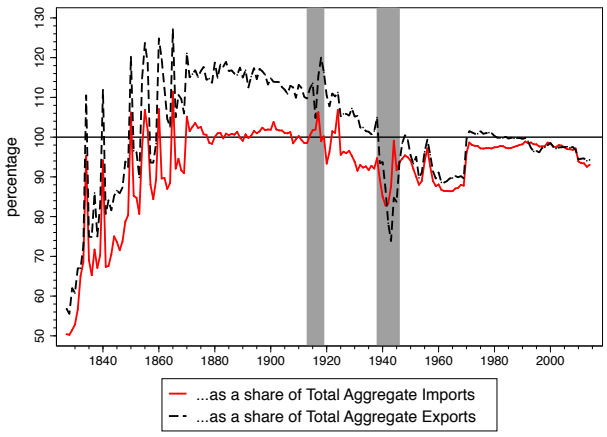

Figure 10 – Bilateral trade flows as a share of total aggregate imports and exports

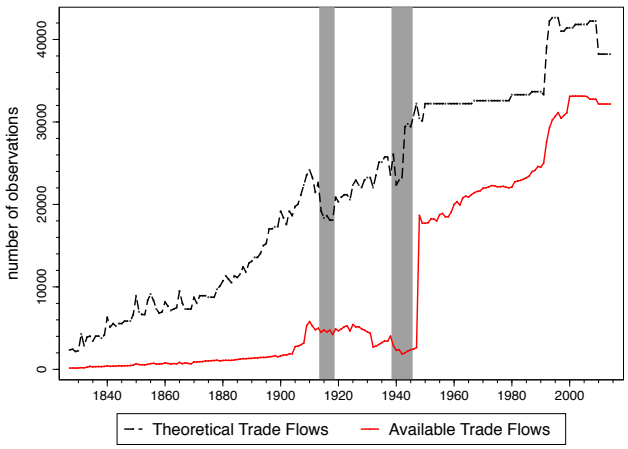

Figure 11 – Theoretical vs. Observed bilateral trade flows

Figure 12 – Observed trade flows as a share of theoretical trade flows

several polities (e.g. Germany) or, on the contrary, from the collapse of a country (eg. Czech Republic and Slovakia) are considered new countries. When the borders of the country are close enough to a present-day country, we use the corresponding ISO-3 code.[15] For the entities that can hardly be matched with any present-day country, we create our own codes, listed in Table 4.

3. Bilateral tariffs

The data set reports about 8,000 observations of bilateral customs duties-to-imports ratios. This data can be used to proxy the level of bilateral tariff protection. Figure 8 shows the number of country pairs for which this ratio is available. The sources are always identical to those used for the bilateral trade data.

4. Aggregate trade

The data set reports about 40,000 observations on total exports and imports. Each observation pertains to a country in a given year. Table 7 shows how the source variables attached to aggregate trade variables – $SOURCE_XPTOT_o(d)$ and $SOURCE_IPTOT_o(d)$ – should be understood.

Figure 13 shows the growth of aggregate exports across the two waves of globalization. From 1827 to 1913, world trade grew on average by 3.9% per year in nominal terms. After World War II, average world trade growth increased to 11.4% per year, with two phases of particular dynamism: right after the war and in the 1970.

Figure 14 shows that total imports are greater than total exports for almost all years. This is due to two reasons. First, customs conventions specify that trade is reported "Free on Board" (F.O.B.) to the exporting country and including the cost of insurance and freight (C.I.F.) at destination. Second, importing countries have greater incentives to carefully report in-flowing trade as governments generally levy taxes on imports. Note that the gap closes from more than 10% in the nineteenth century down to less than 5% after World War II and almost zero in the most recent years.

Figures 15 and 16 respectively report the availability of aggregate exports and imports data from 1827 to 1947. Figure 17 reports the number of observations for each year.

5. Aggregate tariffs

We provide about 1,500 observations of customs duties-to-imports ratios, at the country level. This measure can be used as a measure of the level of countries' aggregate trade protection.

[15] e.g. "DEU" identifies Germany for 1871-1888, even if Hamburg, Lübeck and Bremen only join the German Empire in 1888. On the contrary, Austria-Hungary disappears in 1918, while Austria and Hungary appear in 1919.

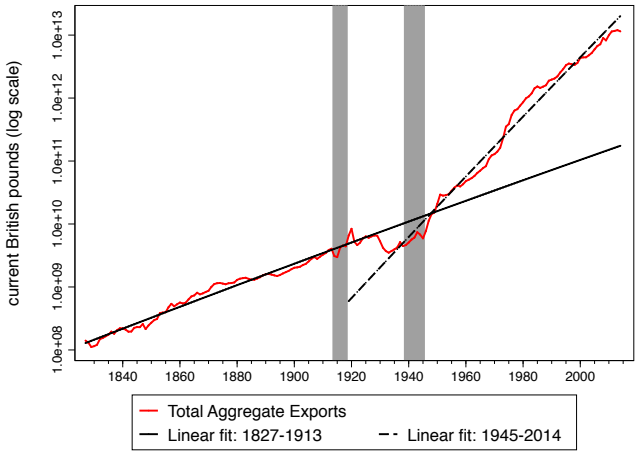

Figure 13 – Total aggegate exports

Figure 14 – Total aggregate exports as a share of total aggregate imports

Table 6 shows how the source variable should be understood. Figure 17 also reports the number of countries for which my measure of aggregate tariff protection is available.

SOURCE_TARIFF	First year	Last year	Observations	Source
CLEMENS	1865	1950	658	Clemens and Williamson (2004)
OECD	1946	2010	374	OECD (2014)
USA HIST STAT	1827	1955	129	Carter et al. (2006)
NLD SMITS	1827	1913	87	Smits and Horlings (2000)
FRA VILLA	1890	1964	75	Villa (1993)
FRA LEVY	1827	1889	63	Lévy-Leboyer and Bourguignon (1985)
GBR MITC BRITSTAT	1827	1864	38	Mitchell (1988)
MITC	1914	1954	38	Mitchell (2007a,b,c)
	1827	**2010**	**1,462**	

Table 6 – Correspondence table for the aggregate tariff source variable (Sorted by the number of observations in the data set)

6. GDP

We provide about 14,000 observations on current price GDP. Most of the data before 1960 is extracted from a recent literature which aims to reconstruct historical national accounts. Figure 17 reports the number of countries for which we provide GDP data. Figure 18 lists the country-years for which we report GDP data, prior to 1960.[16] Table 7 shows how the source variables attached to GDP variables – $SOURCE_GDP_o(d)$ – should be read.

[16] 1960 is the initial year covered by the extensive World Bank (2015) data.

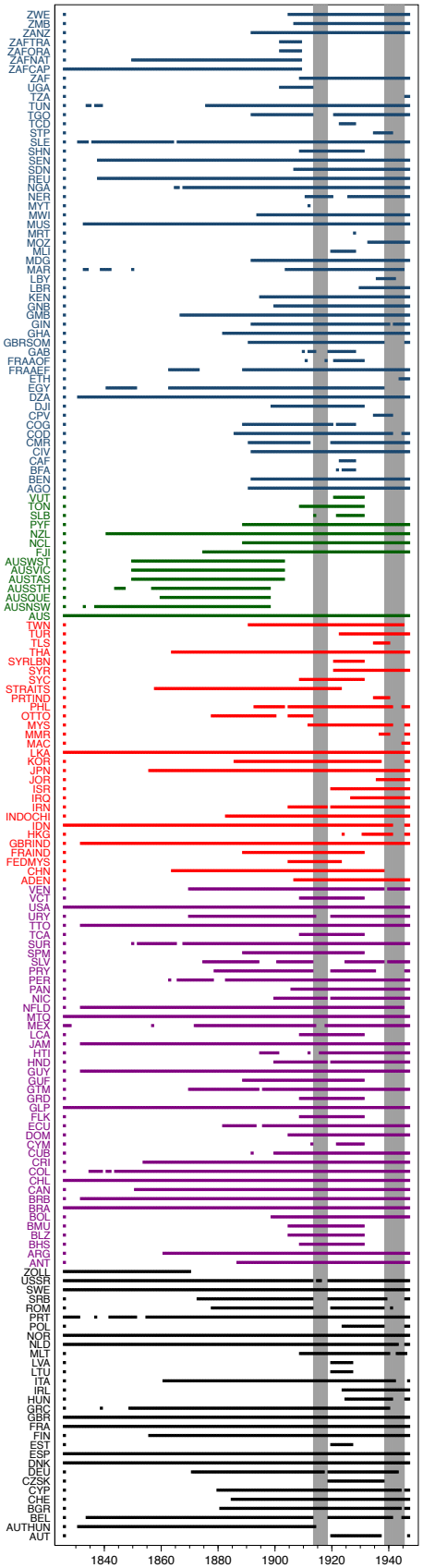

Figure 15 – Reporters in the aggregate export data: 1827-1947

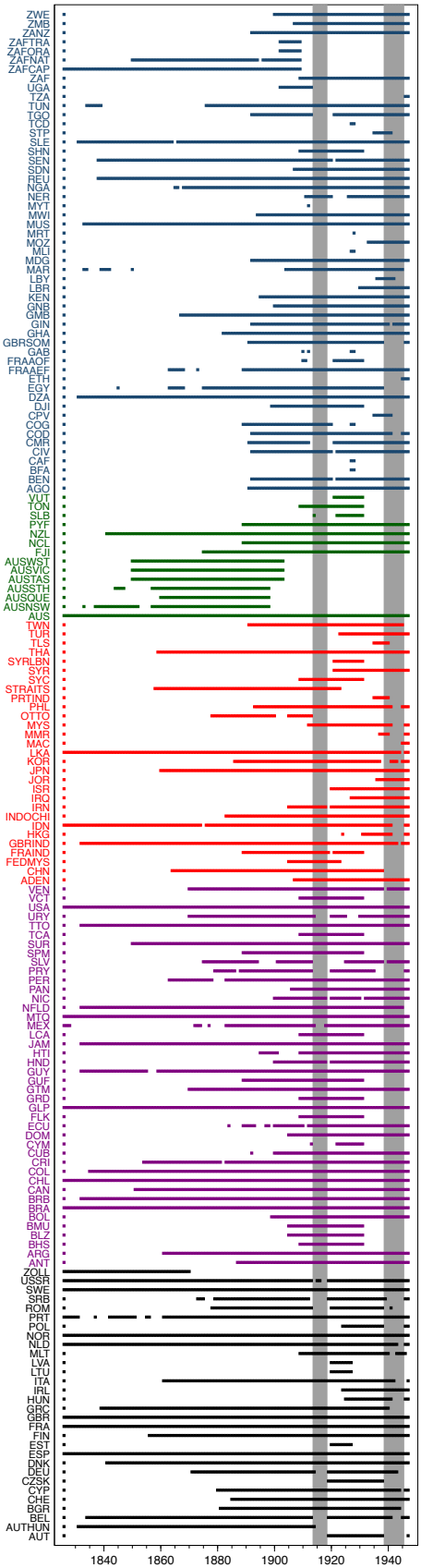

Figure 16 – Reporters in the aggregate import data: 1827-1947

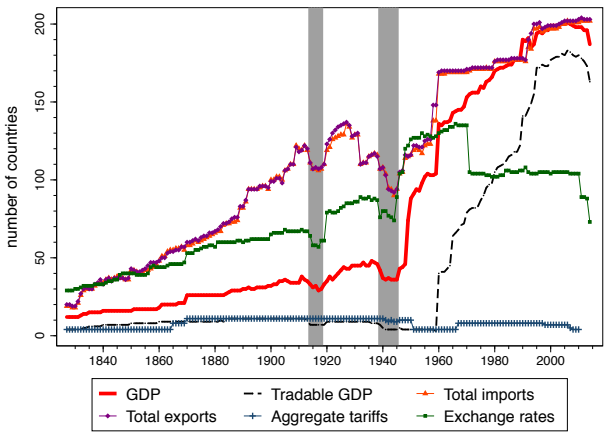

Figure 17 – Availability of country year-specific variables

We also provide four variables – $SH_PRIM_o(d)$ and $SH_SECD_o(d)$ – that respectively report the share of the primary and the secondary sector in the GDP of the origin (destination) country. The sources are always identical to those used for the GDP data. Figure 17 also reports the number of countries for which we were able to compute tradable GDP as the cumulative share of the primary and secondary sectors in GDP.

7. Exchange rates

We provide exchange rates vis-à-vis the British pound sterling. The exchange rate variable is set to the British pound value of one local currency unit. Figure 17 reports for each year the number of countries for which exchange rate data is available. Table 8 shows how the source variables should be understood. Figure 19 reports for each year before 1948 the countries for which we provide exchange rate data.[17]

[17] The data set of the International Monetary Fund (2012) reports exchange rates from 1948 onward.

SOURCE_TF	First year	Last year	Observations	Source
DOTS	1948	2014	1,619,594	International Monetary Fund (2002 and 2015)
GBRCOLO	1904	1931	67,647	Board of Trade (1920-1932)
COW	1870	2009	45,808	Barbieri and Keshk (2012)
RIC	1828	1938	29,175	Dedinger and Girard (2017)
MITC	1827	2000	12,565	Mitchell (2007a,b,c)
FRA TABLEAU GAL	1827	1948	11,872	Ministère des Finances (1827-1948)
IND ANNUAL STMT	1867	1949	10,028	Government of India (1872-1898, 1904-1949)
NLD STAT	1846	1950	9,146	Departement van Financien (1847-1876, 1877-1916) Centraal-bureau voor de Statistiek (1920-1944, 1951)
GBR ANNUAL STMT	1854	1947	8,279	Houses of Parliament (1855-1949)
BEL TABLEAU GAL	1876	1947	6,984	Ministère des Finances (1881-1913, 1920-1921, 1922, 1923-1931) Ministère de l'Intérieur (1934-1939) Ministère des Affaires Économiques (1942-1944, 1945-1949)
FIN BIDRAG	1856	1949	6,654	Finlands Officiela Statistik (1856-1903) Suomen Virallinen Tilasto / Finlands Officiela Statistik (1904-1950)
SWE OFFICIELA STAT	1893	1947	5,960	Sveriges Officiela Statistik (1880-1949)
ESP ANUARIO ESTAD	1849	1948	5,541	Junta General de Estadistica (1858-1943) Ministerio de Hacienda (1944-1948)
BRA COMMERCIO	1913	1947	5,130	Ministerio da Fazenda (1921-1950)
ESP TENA JUNGUITO	1827	1997	4,745	Tena Junguito (unpublished, 2012)
CHE RAPPORT ANNU	1892	1947	4,141	Douanes Fédérales (1912-1947)
NZL OFFICIAL YRBK	1893	1947	3,981	Census and Statistics Department (1895-1951)
AUT STAT HANDELS	1891	1930	3,894	Handelsministerium (1891-1917) Staatsamtes für Handel etc. (1919-1930)
ITA ANNUARIO STAT	1862	1948	3,575	Ministerio di Agricoltura, Industria e Commercio (1888-1907) Instituto Centrale di Statistica (1911-1949)
FRACOLO	1910	1928	3,373	Ministère des Colonies (1910-1928)
GBR YEARBOOK	1870	1913	3,226	Houses of Parliament (1870-1913)
USA MSCF	1827	1900	3,015	Treasury Department (1896-1901)
PRT ESTAT COM	1898	1947	2,850	Ministério da Finanças (1926)
DZA DOCS STAT	1901	1930	2,726	Gouvernement Géneral de l'Algérie (1902-1930)
PRTCOLO	1938	1941	2,383	Instituto Nacional de Estatística (1941-1943)
USA HIST STAT	1827	1970	2,070	Carter et al. (2006)
CHN RETURNS TRADE	1864	1935	1,977	Imperial Maritime Customs (1867, 1871-1909) Chinese Maritime Customs (1913-1924, 1934)
USA FRGN COMMERCE	1896	1915	1,769	Department of Commerce and Labor (1906-1908) Department of Commerce (1913-1915)
IND STABSTRACT	1841	1903	1,675	Houses of Parliament (1867-1905)
POL GLOWNY URZAD	1924	1938	1,472	Główny Urzad Statystyczny (1925-1939)
JACKS	1870	1947	1,246	Jacks and Meissner (2011)
AUS TRADE CUST	1887	1907	1,100	Bureau of Census and Statistics (1906-1907)
IDN JAARCIJFERS	1907	1938	958	Centraal Bureau voor de Statistiek (1919) Department van Landbouw (1924-1939)
COD STAT COMMERCE	1918	1930	953	Ministère des Colonies (1918-1930)
CHL EST COMERCIAL	1872	1911	807	Oficina Central de Estadística (1888-1911)
SWE HIST STAT	1948	1969	659	Statistika Centralbryån (1972)
USSR STATOBZOR	1932	1936	503	Glavnoe Tamozhenoe Upravlienie (1933-1936)
MLT STABSTRACT	1936	1946	403	Office of Statistics (1947)
EGY ANNUAIRE STAT	1917	1928	383	Ministère des Finances (1923, 1930)
ITW	1913	1938	269	Kitson and Solomou (1990)
MAR STAT COMMERCE	1913	1930	266	Service du Commerce et de l'Industrie (1913-1930)
TUN DOCS STAT	1914	1930	241	Régence de Tunis (1914-1930)
JPN ANNUAL RETURN	1904	1908	198	Department of Finance (1904-1908)
GBR MITC BRITSTAT	1833	1945	188	Mitchell (1988)
URY BONINO	1872	1913	122	Bonino-Gayoso and Tena-Junguito (2015)
USA GAZETEER	1840	1840	56	Haskel (1844)
USA ANNUAL REPORT	1884	1884	44	Treasury Department (1884)
MLT BLUEBOOK	1922	1922	39	Office of Statistics (1923)
	1827	**2014**	**1,899,690**	

Table 3 – Correspondence table for the bilateral trade source variable (Sorted by the number of observations in the data set)

Country code	Corresponding entity
2SICIL	Kingdom of the two Sicilies, Kingdom of Naples
ADEN	Aden
ALASKA	Alaska
ALSLOR	Alsace-Lorraine
AOFAEF	French Western and Equatorial Africa
AUSNSW	New-South Wales
AUSQUE	Queensland
AUSSTH	Southern Australia
AUSTAS	Tasmania
AUSVIC	Victoria
AUSWST	Western Australia
AUTHUN	Austria-Hungary
AZORES	Azores
BARBAR	Barbary States
BREMEN	Bremen
CANARY	Canary islands
CANPRINCED	Prince-Edward island
CANQBCONT	Quebec-Ontario
CHISL	Channel islands
CZSK	Czechoslovakia
DANTZ	Dantzig
DEUAFRI	German Africa
DEUNEWGUI	German New Guinea
DEUWAF	German West Africa
EDEU	German Democratic Republic
FEDMYS	Federated Malay States
FIUME	Fiume
FRAAEF	French Equatorial Africa
FRAAFRI	French Africa, French possessions in Africa
FRAAOF	French Western Africa
FRAEAFRI	French Eastern Africa
FRAIND	French East Indies
FRAOCEA	French Oceania
FRAWINDIES	French West Indies
GBRAFRI	British Africa
GBRBORNEO	British Borneo, North Borneo
GBRIND	British India
GBRMEDI	British possessions in the Mediterranean
GBRPAPUA	British Papua / British New Guinea
GBRSOM	British Somaliland
GBRWAFRI	British West Africa
GBRWINDIES	British West Indies
HAMBG	Hamburg
HANOV	Hanover
HANS	Hanseatic cities, Hanseatic League
INDOCHI	French Indochina
ITAEAFRI	Italian East Africa
ITASOM	Italian Somaliland
KWANTU	Kwantung Leased Territory
LUBECK	Lubeck
MADEIRA	Madeira
MANCHU	Manchuria, Manchukuo
MARESP	Spannish Marocco
MECKL	Mecklenburg
NFLD	Newfoundland
OLDENB	Oldenburg
OTTO	Ottoman Empire
PRTAFRI	Portuguese Africa
PRTIND	Portuguese India
PRTWAFRI	Portuguese West Africa
PRUS	Prussia
RHOD	Rhodesias
ROME	Rome
RWABDI	Rwanda-Urundi
SARD	Sardinia
SARRE	Sarre
SCHLES	Schleswig, Schleswig-Holstein
STRAITS	Straits Settlements
SWENOR	United Kingdoms of Sweden and Norway
SYRLBN	French Mandate for Syria and the Lebanon
TANGER	Tangiers, Tangiers International Zone
TEXAS	Texas
TGOCMR	Togo-Cameroon
TRIEST	Trieste
TUSC	Tuscany
UKNLD	United Kingdom of the Netherlands
ULSTER	Ulster / Northern Ireland
UNFEDMYS	Unfederated Malay States
USSR	Russian Empire/USSR
WDEU	Federal Republic of Germany (West Germany)
ZAFCAP	Cape Colony
ZAFNAT	Natal
ZAFORA	Orange River Colony, Orange Free State
ZAFTRA	Transvaal
ZANZ	Zanzibar
ZOLL	Zollverein

Table 4 – Additional country codes

SOURCE_IPTOT SOURCE_XPTOT	First year	Last year	Observations	Source
DOTS	1948	2014	19,016	International Monetary Fund (2002 and 2015)
MITC	1827	1993	11,705	Mitchell (2007a,b,c)
WDI	1960	2012	3,022	World Bank (2015)
GBRCOLO	1904	1931	1,921	Board of Trade (1920-1932)
FRA ANNU STAT	1889	1931	1,251	Présidence du Conseil (1932)
RIC	1833	1938	960	Dedinger and Girard (2017)
FRACOLO	1899	1929	382	Ministère des Colonies (1910-1928)
NOR HIST STAT	1830	1947	224	Grytten (2004)
ESP ANUARIO ESTAD	1849	1947	200	Junta General de Estadistica (1858-1943) Ministerio de Hacienda (1944-1948)
NLD STAT	1846	1947	197	Departement van Financien (1847-1876, 1877-1916) Centraal-bureau voor de Statistiek (1920-1944, 1951)
GBR ANNUAL STMT	1854	1947	188	Houses of Parliament (1855-1949)
FIN BIDRAG	1861	1947	160	Finlands Officiela Statistik (1856-1903) Suomen Virallinen Tilasto / Finlands Officiela Statistik (1904-1950)
IND ANNUAL STMT	1867	1947	157	Government of India (1872-1898, 1904-1949)
FRA TABLEAU GAL	1827	1927	152	Ministère des Finances (1827-1948)
ESP TENA JUNGUITO	1827	1939	151	Tena Junguito (unpublished, 2012)
IPOLATE	1827	1985	139	Aggregate trade data interpolated for missing periods inferior or equal to five years, if the difference between the last and the next available observations is less than 30%.
ITA ANNUARIO STAT	1862	1947	132	Ministerio di Agricoltura, Industria e Commercio (1888-1907) Instituto Centrale di Statistica (1911-1949)
SWE OFFICIELA STAT	1880	1947	128	Sveriges Officiela Statistik (1880-1949)
CHN RETURNS TRADE	1864	1935	126	Imperial Maritime Customs (1867, 1871-1909) Chinese Maritime Customs (1913-1924, 1934)
CHL DIAZ	1827	1947	121	Díaz and Wagner (2004)
CHL LUDERS	1827	1947	121	Lüders (1998)
USA HIST STAT	1829	1947	118	Carter et al. (2006)
SWE EDVINSSON	1827	1888	114	Edvinsson (2005)
BEL TABLEAU GAL	1876	1947	112	Ministère des Finances (1881-1913, 1920-1921, 1922, 1923-1931) Ministère de l'Intérieur (1934-1939) Ministère des Affaires Économiques (1942-1944, 1945-1949)
DEU BONDI	1827	1898	109	Bondi (1958)
PRT ESTAT COM	1898	1946	96	Ministério da Finanças (1926)
PRT HIST STAT	1827	1927	94	Nuno (2001)
PRTCOLO	1935	1941	94	Instituto Nacional de Estatística (1941-1943)
COD STAT COMMERCE	1889	1930	84	Ministère des Colonies (1918-1930)
AUT STAT HANDELS	1891	1947	74	Handelsministerium (1891-1917)
CHE RAPPORT ANNU	1912	1947	67	Douanes Fédérales (1912-1947)
BRA COMMERCIO	1913	1947	66	Ministerio da Fazenda (1921-1950)
IDN JAARCIJFERS	1907	1938	60	Centraal Bureau voor de Statistiek (1919) Department van Landbouw (1924-1939)
IND STABSTRACT	1841	1899	56	Houses of Parliament (1867-1905)
DZA DOCS STAT	1901	1930	54	Gouvernement Géneral de l'Algérie (1902-1930)
GBR MITC BRITSTAT	1827	1853	54	Mitchell (1988)
ARG TENA JUNGUITO	1870	1913	44	Tena Junguito and Willebald (2013)
AUS TRADE CUST	1887	1906	40	Bureau of Census and Statistics (1906-1907)
NLD SMITS	1827	1845	38	Smits and Horlings (2000)
POL GLOWNY URZAD	1924	1938	26	Główny Urzad Statystyczny (1925-1939)
EGY ANNUAIRE STAT	1917	1928	20	Ministère des Finances (1923, 1930)
MLT STABSTRACT	1936	1946	18	Office of Statistics (1947)
JPN LEWIS	1856	1869	14	Lewis (1984)
USSR STATOBZOR	1932	1936	10	Glavnoe Tamozhenoe Upravlienie (1933-1936)
JPN ANNUAL RETURN	1904	1908	8	Department of Finance (1904-1908)
TUN DOCS STAT	1921	1929	7	Régence de Tunis (1914-1930)
USA SENATE	1828	1836	6	United States Senate (1891)
NZL OFFICIAL YRBK	1939	1947	6	Census and Statistics Department (1895-1951)
ITW	1919	1919	2	Kitson and Solomou (1990)
	1827	**2014**	**41,944**	

Table 5 – Correspondence table for the aggregate trade source variable (Sorted by the number of observations in the data set)

SOURCE_GDP	First year	Last year	Observations	Source
WDI	1960	2014	8,499	World Bank (2015)
MITC	1827	1998	1,659	Mitchell (2007a,b,c)
BARBIERI	1949	1992	1,056	Barbieri and Keshk (2012)
GGDC	1827	1959	335	Smits and Woltjer (2014)
DINCECCO	1870	1970	265	Dincecco and Prado (2013)
DEU FREMDLING	1827	1969	143	Álvarez-Nogal and Prados de la Escosura (1995) – Estimates for Prussia extrapolated using population data for the Zollverein/Germany.
GBR BROADBERRY	1827	1959	133	Broadberry et al. (2011)
SWE EDVINSSON	1827	1959	133	Edvinsson (2011)
USA MEASURING	1827	1959	133	Williamson (2014)
CHE STOHR	1851	1980	130	Stohr (2014)
NOR HIST STAT	1830	1959	124	Grytten (2004)
PRT HIST STAT	1851	1959	109	Nuno (2001)
GRC KOSTELENOS	1833	1939	107	Bitzis and Kostelenos (2008)
FRA TOUTAIN	1827	1938	106	Toutain (1987)
CHL DIAZ	1827	1929	103	Díaz and Wagner (2004)
JPN OKAWA	1868	1952	85	Okawa and Shinohara (1993)
ARG ECHIARG	1884	1962	79	Della Paolera and Taylor (2003)
VNM BASSINO	1890	1970	78	Bassino (2010)
CHN MA	1840	1912	73	Ma and de Jong (2014)
COL MEJIA	1832	1904	73	Mejía (2015) - Estimates every ten years (Table 4.b.), interpolated using population data (Table 1).
TWN NATSTAT	1951	2012	64	National Statistics - Republic of China (Taiwan)
CAN URQU	1870	1925	56	Urquhart (1986)
COL GRECO	1905	1959	55	Urrutia et al. (1999)
MEX HIST STAT	1895	1959	55	Instituto Nacional de Estadística (1985)
CUB HANDBOOK	1903	1958	51	Schroeder (1982)
URY BERTINO	1901	1955	50	Bertino and Tajam (1999)
SGP SUGIMOTO	1900	1959	50	Sugimoto (2011)
AUTHUN SCHULZE	1870	1913	44	Schulze (2000) – Reflated using wholesale prices from Mitchell (2007b).
URY BERTOLA	1870	1900	31	Bértola (1998)
CHELEM	1885	1913	29	Fouquin et al. (1988)
IPOLATE	1902	1985	29	GDP data interpolated for missing periods inferior or equal to five years, if the difference between the previous and the following available observation is inferior to 15%, World War I and II excluded.
FRA VILLA	1914	1959	27	Villa (1993)
PRT PALMA	1827	1850	24	Palma and Reis (2014)
ESP ALVAREZ	1827	1849	23	Álvarez-Nogal and Prados de la Escosura (2013)
USSR KUSHNIR	1984	1990	21	Kushnir (2015)
JACKS	1911	1945	14	Jacks and Meissner (2011) – Reflated constant price data chosen when no other source available, and when figures were very similar to current price figures for surrounding years.
USSR HARRISON	1914	1928	13	Harrison and Markevich (2011)
CHL HIST STAT	1930	1941	12	Mamalakis (1985)
MMR HLAING	1901	1938	9	Hlaing (1964)
BGR IVANOV	1892	1924	6	Ivanov (2006)
CHN RAWSKI	1932	1936	5	Rawski (1989)
URY BANCO	1956	1960	5	Banco de la República Oriental del Uruguay (1965)
MADGOOD	1827	1829	3	Maddison (2001) – Constant price data interpolated for missing years using population data, reflated using country price index from Mitchell (2007b).
MADPURE	1946	1948	3	Maddison (2001) – Constant price data reflated using country price index from Mitchell (2007b).
	1827	**2014**	**14,102**	

Table 7 – Correspondence table for the GDP source variable (Sorted by the number of observations in the data set)

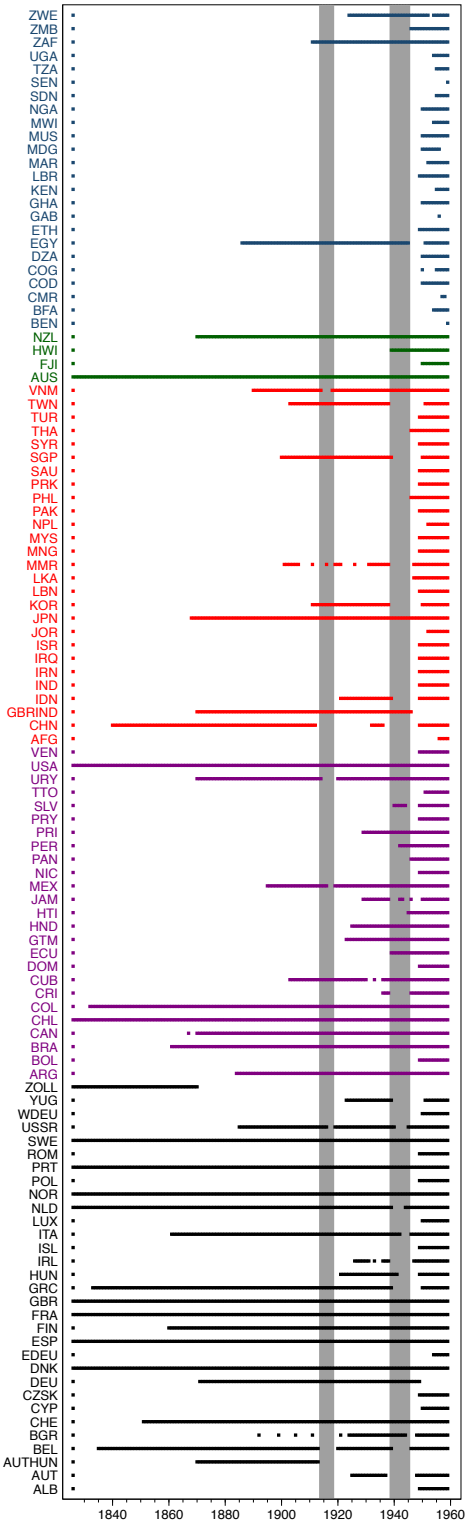

Figure 18 – Country-year coverage of GDP data: 1827-1959

SOURCE_XCH	First year	Last year	Observations	Source
IFS	1948	2014	4,394	International Monetary Fund (2012)
WIKI	1827	2013	2,448	Extracted from Wikipedia
COW	1870	1992	2,005	Barbieri and Keshk (2012)
LAWR	1827	2012	1,752	Officer (2014)
HDBK	1827	1914	1,750	Denzel (2010)
FEDETENA	1827	1938	538	Federico and Tena-Junguito (2016)
WAHR	1827	1920	420	Schneider and Schwarzer (1991)
IPOLATE	1827	2005	374	Linear interpolation: used to fill holes in series for which the difference between the last and the next data point is less than 20%.
NOR HIST STAT	1827	2003	177	Klovland (2004)
ESP TENA JUNGUITO	1827	1959	125	Tena Junguito (unpublished, 2012) – Exchange rate Pesetas corriente/ Pesetas oro deduced from data reported in both units.
GRC KOSTELENOS	1833	1938	106	Bitzis and Kostelenos (2008)
SVER	1827	1944	102	Edvinsson and Jacobson (2008)
PRT HIST STAT	1891	1950	60	Nuno (2001)
RIC	1837	1938	44	Dedinger and Girard (2017)
JAM BOJ	1971	2012	43	Bank of Jamaica (2015)
ECB	1999	2013	15	European Central Bank (2015)
CHN LIANG LIN	1915	1948	14	Liang-Lin (1974)
CHL DIAZ	1915	1947	8	Díaz and Wagner (2004)
COL MEJIA	1832	1860	4	Mejía (2015)
CHELEM	1915	1941	2	Fouquin et al. (1988)
	1827	**2014**	**14,381**	

Table 8 – Correspondence table for the exchange rate source variable (Sorted by the number of observations in the data set)

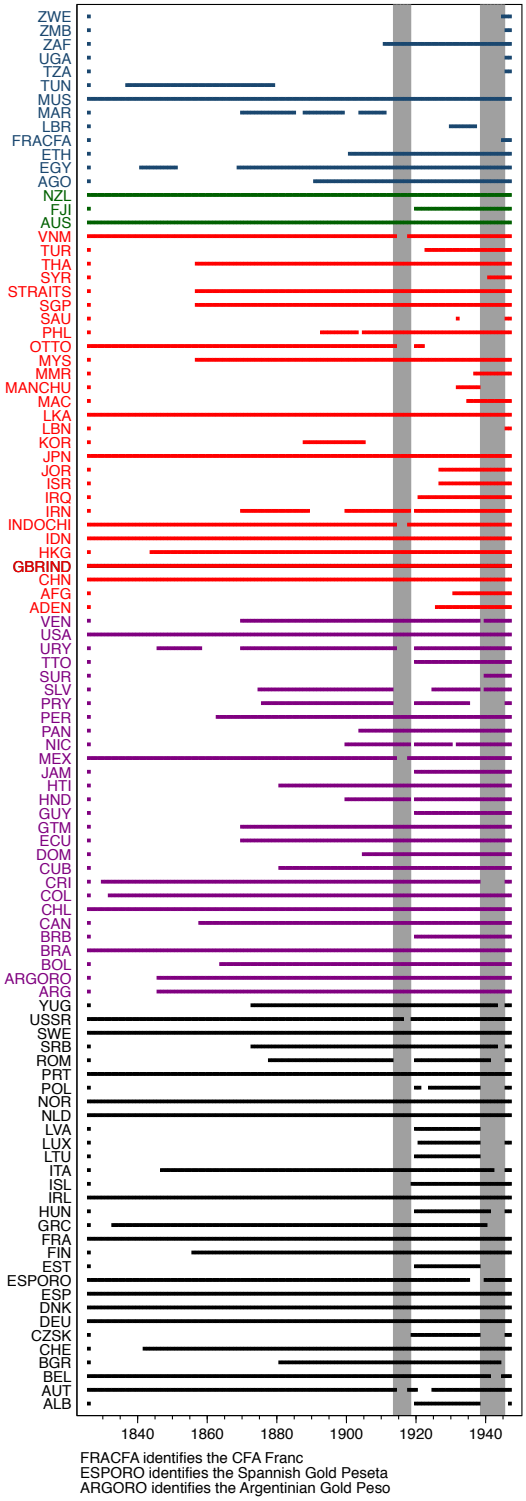

Figure 19 – Country-year coverage of exchange rate data: 1827-1947

8. Distance variables

We provide four measures of bilateral distance: two are based on the great circle formula and two reflect the shortest maritime distance at different points in time. $Distw$ is a city population-weighted mean of the great-circle distance between each pair of countries, extracted from the CEPII's $GeoDist$ data set.[18] $Dist_coord$ is a measure of the great-circle distance between the two largest cities of each country pair. Contrary to $Distw$, this measure covers all the country pairs in the data, including those that disappeared (e.g. Indochina-USSR). Figure 20 breaks down the bilateral trade data using $Distw$, supplemented when necessary with $Dist_coord$.

$SeaDist_SHRT$ is a measure of the shortest maritime distance between two countries. All maritime distances have been extracted from Vesseltracker.com (2014). We first selected the largest port of each country (two ports when the country is flanked by two different oceans). Then, for each country-pair, we chose the shortest maritime distance between any of the ports of both countries. For landlocked countries, we chose the closest foreign port. We do not report any value if the country pair shares a border and at least one of the two is landlocked (e.g. Paraguay-Argentina). $SeaDist_2CST$ is identical to $SeaDist_SHRT$, except for the distances involving Canada and the USA, for which distance is computed as .95 $\times$ maritime distance with the east cost main port (respectively Montreal and New-York + 0.15 $\times$ distance with the west coast main port (respectively Vancouver and Los Angeles). Both $SeaDist_SHRT$ and $SeaDist_2CST$ vary across time and correspond to the shortest distance without any inter-oceanic canal until 1869, shortest distance taking into account the Suez Canal for 1870-1920, shortest distance taking into account both the Suez and Panama Canal for 1921-1966 and 1976-2014 and shortest distance taking into account the Panama Canal only for 1967-1975.[19]

We also provide measures of countries' internal distances. $Dist_o(d)$ is set to $.67\sqrt{area/\pi}$[20].

9. Other variables

Geographic location

We provide variables identifying the continent and sub-continental region of each country. Table 9 summarizes the values taken by those four variables: $CONTI_o(d)$ and $REGIO_o(d)$. In Figure 21, we use this information to break down the bilateral trade data by trade route. The left panel of Figure 22 reports the share of various regions in the bilateral export data. The right panel reports the same information for the aggregate export data. The almost perfect matching between the two panels indicates that our bilateral data is representative of world trade.

[18] A detailed description of the variable can be found in Head and Mayer (2002) and Mayer and Zignago (2011).
[19] The 1967-1975 period corresponds to the closing of the Suez Canal, consecutive to the Six-Day War.
[20] Variable $dist_int$ from the $GeoDist$ data set, supplemented with information on the area of the countries that disappeared. For a detailed discussion, see Head and Mayer (2002), pp.10-11.

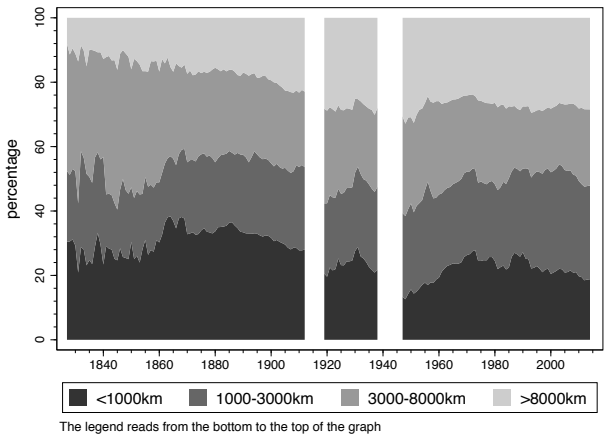

Figure 20 – Cumulative share of bilateral trade flows, by distance across partners

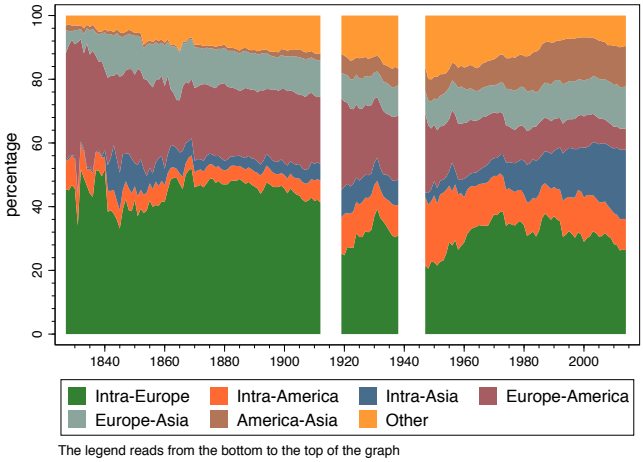

Figure 21 – Cumulative share of bilateral trade flows, by trade route

CONTI_o(d)	*REGIO_o(d)*	Description	# of entities
AFRI		**Africa**	**84**
	NORAFR	North Africa	11
	STHAFR	Sub-Saharan Africa	73
AMERI		**America**	**60**
	CARIB	Caribbean	28
	CTRAM	Central America	9
	NORAM	North America	8
	STHAM	South America	15
ASIA		**Asia**	**69**
	CTRASI	Central Asia	9
	ESTASI	Eastern Asia	9
	MIDEST	Middle East	21
	STHASI	Southern Asia	30
EUROP		**Europe**	**86**
	CTREUR	Central Europe	6
	ESTEUR	Eastern Europe	14
	NWEUR	Northwestern Europe	28
	SCANDI	Scandinavia	8
	STHEUR	Southern Europe	30
OCEA	OCEA	**Oceania**	**33**
			332

Table 9 – Correspondence table for geographic location variables

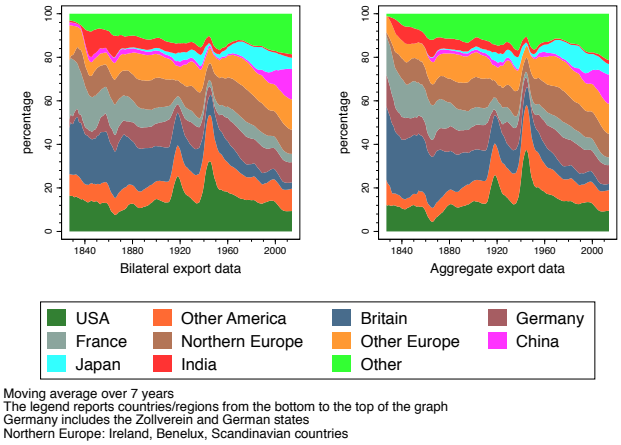

Figure 22 – Cumulative share of bilateral and aggregate exports, by region

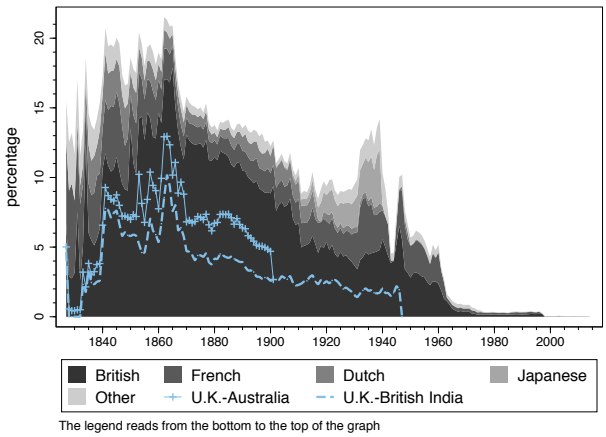

Figure 23 – Cumulative share of colonial bilateral trade, by colonizer

Colonial ties

We provide several variables to identify the colonial status of country pairs. $Curcol$ is set to unity if the pair is in a colonial relationship in a given year. When $Curcol$ is set to unity, $Metro$ and $Colo$ respectively identify the colony and the metropolis. $Evercol$ is set to unity if the pair was ever in a colonial relationship.

We also provide monadic variables that identify the colonial status of each country. $Curcol_o(d)$ are two dummy variables that are set to unity if the origin (destination) country is a colony of any country during the year of interest.

This data is an extended version of the data from Head and Mayer (2010), that covers 1948-2006. Figure 23, combines the $Curcol$ variable with the bilateral trade data, to identify the share of colonial trade in the data set. Figure 23 notably emphasizes the overwhelming role of Britain in colonial trade.

Population

We provide population data, extracted from Maddison (2001) and the World Bank (2015), reported in 1000s of people. The data is linearly interpolated for missing years when the data from Maddison (2001) has gaps. For these observations, the $SOURCE_POP_o(d)$ variable takes the value "$MADDISON_IPO$".

Variable	Dimension	Description
$iso_o(d)$	country	Origin (destination) country iso3 code
$year$	year	Year
$FLOW$	country-pair-direction-year	Bilateral trade flow in current British pounds
$FLOW_0$	country-pair-direction-year	Bilateral trade flow likely equal to zero
$SOURCE_TF$	country-pair-direction-year	Source for the bilateral trade flow
$GDP_o(d)$	country-year	GDP of the origin (destination) country in British pounds
$SOURCE_GDP_o(d)$	country-year	Source of GDP data
$SH_PRIM_o(d)$	country-year	Share of primary sector in the origin (dest.) country's GDP (%)
$SOURCE_SH_PRIM_o(d)$	country-year	Source for the share of the primary sector
$SH_SECD_o(d)$	country-year	Share of secondary sector in the origin (dest.) country's GDP (%)
$SOURCE_SH_SECD_o(d)$	country-year	Source for the share of the secondary sector
$IPTOT_o(d)$	country-year	Total imports in current British pounds
$SOURCE_IPTOT_o(d)$	country-year	Source of total imports data
$XPTOT_o(d)$	country-year	Total exports in current British pounds
$SOURCE_XPTOT_o(d)$	country-year	Source of total exports data
$BITARIFF$	country-pair-direction-year	Tariff imposed by country d on imports from country o (i.e. ratio of bilateral duties to imports, %)
$TARIFF_o(d)$	country-year	Average tariff imposed by country $o(d)$ (i.e. Duties/Imports, in %)
$SOURCE_TARIFF_o(d)$	country-year	Source for aggregate tariffs
$Distw$	country pair	Population-weighted-great-circle distance, in km. (see: Mayer and Zignago (2011), p.11)
$Dist_coord$	country pair	Great-circle distance between main cities, in km.
$Dist_o(d)$	country	Internal distance of the origin (destination) country computed as: $.67\sqrt{area/\pi}$, in km. (Head and Mayer, 2002)
$SeaDist_SHRT$	country-pair-year	Shortest bilateral sea distance, in km.
$SeaDist_2CST$	country-pair-year	Shortest bilateral sea distance, in km., with distance with the USA and Canada computed as .95 $\times$ distance w/ east coast + .15 $\times$ distance w/ west coast main port
$Comlang$	country-pair	=1 if at least one language is spoken by more than 9% of the population in both countries
$Contig$	country-pair	=1 if the countries are contiguous
$Curcol$	country-pair-year	=1 if the origin and the dest. are in a colonial relationship
$Metro$	country-pair-year	iso3 code of the metropolis for colonial pairs
$Colo$	country-pair-year	iso3 code of the colony for colonial pairs
$Curcol_o(d)$	country-year	=1 if the country is a colony
$Evercol$	country pair	=1 if the origin and the dest. ever were in a colonial relationship
$XCH_RATE_o(d)$	country-year	British pounds per local currency unit
$SOURCE_XCH_o(d)$	country-year	Source for the exchange rate
$POP_o(d)$	country-year	Population of the origin (destination) country (1000s)
$SOURCE_POP_o(d)$	country-year	Source for population data
$CONTI_o(d)$	country	Continent of the origin (destination) country
$REGIO_o(d)$	country	Sub-continental region of the origin (destination) country
$OECD_o(d)$	country-year	=1 if the country belongs to the OECD
$EU_o(d)$	country-year	=1 if the country belongs to the E.U.
$GATT_o(d)$	country-year	=1 if the country belongs to the GATT/WTO

Table 10 – Description of the variables in the dataset

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