



HIEL-23

30 de mayo de 2023

# Índice Histórico de Libertad Económica

## Concepto, fuentes y procedimientos

**Leandro Prados de la Escosura**

Catedrático Emérito de Historia Económica de la Universidad Carlos III de Madrid, Investigador del Centre for Economic Policy Research del Reino Unido y Catedrático Rafael del Pino

# CONCEPTO

## Índice Histórico de Libertad Económica<sup>1</sup>

La libertad económica es una libertad ‘negativa’, definida como la ausencia de interferencia o coerción en las decisiones económicas del individuo. La elección personal, el intercambio voluntario, el acceso a los mercados y la protección de las personas y de su propiedad son sus elementos constitutivos.

Un país puede considerarse económicamente libre en la medida en que las personas y su propiedad estén protegidas, los contratos se cumplan, haya estabilidad de precios, las barreras al comercio sean reducidas y los recursos se asignen fundamentalmente en el mercado. El propósito de un índice de libertad económica es comprobar la coherencia entre las instituciones y políticas de un país y estos requisitos.

Pueden distinguirse cuatro dimensiones de la libertad económica: el sistema legal y los derechos de propiedad, el valor del dinero, la apertura internacional y la regulación.

Para cada dimensión de la libertad económica se ha calculado un índice a partir de diferentes indicadores coherente en el espacio y en el tiempo.

Cuando el valor de un indicador está inversamente relacionado con el grado de libertad económica, se ha transformado en un índice mediante la expresión:

$$I_{ij} = 10 (V_{MAX} - V_{ij}) / (V_{MAX} - V_{MIN})$$

En la que  $V_{ij}$  representa el valor del indicador del país  $i$  en el año  $j$ , mientras  $V_{MAX}$  y  $V_{MIN}$  son sus valores máximo y mínimo.

Alternativamente, cuando el valor del indicador está directamente relacionado con el grado de libertad económica, la expresión utilizada es la siguiente:

$$I_{ij} = 10 (V_{ij} - V_{MIN}) / (V_{MAX} - V_{MIN})$$

Así, el índice de libertad económica resultante varía siempre entre 0 (mínimo) y 10 (máximo). El período considerado es el de la expansión y desarrollo del capitalismo moderno y comprende desde surgimiento del libre comercio y el laissez faire a mediados del siglo XIX y el presente.

## Sistema legal y derechos de propiedad

Imperio de la ley, seguridad de los derechos de propiedad, independencia judicial e imparcialidad de los tribunales son requisitos de una estructura legal coherente con los principios de la libertad económica.

Entre los posibles indicadores se han elegido los siguientes:

- Independencia judicial
- Tribunales imparciales
- Integridad del sistema legal
- Cumplimiento de contratos

Un índice agregado se ha obtenido como media aritmética sin ponderar de estos cuatro subíndices. Valor del dinero

Un sistema monetario creíble y eficiente resulta esencial para proteger la libertad económica y su principal contribución consiste en proporcionar estabilidad de precios. La inflación erosiona el valor de la propiedad que se conserva en instrumentos monetarios. Además, tasas de inflación elevadas y volátiles distorsionan los precios relativos y alteran los contratos a largo plazo.

1. El Índice Histórico de Libertad Económica (HIEL) está inspirado y adapta desde una perspectiva a largo plazo el Economic Freedom of the World Index (EFW) del Fraser Institute (Gwartney et al., 2022). Una explicación detallada de los procedimientos de cálculo puede consultarse en esta web. Una discusión del concepto y un análisis de resultados preliminares se encuentra en Prados de la Escosura (2016).

Los indicadores elegidos para valorar la coherencia de las instituciones y la política monetaria con la estabilidad de precios incluyen los siguientes:

- **Tasa de inflación**,
- **Desviación típica de la inflación** (como medida de volatilidad).
- **Crecimiento diferencial de la cantidad de dinero** – la diferencia entre el crecimiento medio anual de la oferta monetaria en los últimos 5 años y el crecimiento medio anual del PIB real durante los 10 últimos años-. Su justificación radica en que unas tasas elevadas de crecimiento de la cantidad de dinero conducen a la inflación.

El índice agregado se obtiene mediante la media aritmética sin ponderar de estos tres subíndices.

### **Apertura internacional**

El libre comercio representa una dimensión clave de la libertad económica en la medida en que proporciona a los individuos la más amplia oferta de bienes y servicios y facilita su especialización de acuerdo con la ventaja comparativa.

A fin de evaluar la libertad económica en el comercio internacional se precisa analizar una amplia gama de restricciones, incluyendo aranceles, el tipo de cambio y controles de capitales. Tres indicadores se han considerado:

- **Aranceles**. La protección nominal ponderada medida como la ratio entre la renta total de aduanas y el valor total de exportaciones e importaciones
- **Movilidad de factores**. Combina índices de movilidad del capital y del trabajo.
- **Premio del mercado negro** medido como la diferencia, en logaritmos, entre el tipo de cambio oficial y el tipo de cambio paralelo (mercado negro) (a partir de 1946).

El índice agregado resulta de la media aritmética sin ponderar de los tres subíndices.

### **Regulación**

La regulación de las actividades económicas puede suponer una restricción de la libertad de mercado al interferir con la decisión de los individuos de participar en intercambios voluntarios. Tres tipos de regulación se han distinguido:

#### **Regulación del mercado crediticio**

Se compone de dos indicadores:

- **El control de los tipos de interés**, cuya evolución a largo plazo puede aproximarse mediante el tipo de interés real a corto plazo (el tipo nominal menos la tasa de inflación).
- **La proporción del saldo presupuestario sobre el PIB**. Proporciona un indicador del riesgo de efecto “expulsión” (crowding out).

El índice agregado se ha obtenido como la media aritmética no ponderada de estos dos índices.

#### **Regulación del mercado laboral**

Las leyes y regulaciones que afectan a los salarios y las condiciones laborales pueden restringir la libertad económica negativa al constreñir o reducir la flexibilidad del mercado laboral. Tres indicadores han sido elegidos:

- **Libertad de movimiento dentro de las fronteras del país**
- **Libertad de trabajo forzado**
- **Legislación protectora del empleo**. Un índice de legislación protectora del empleo (EPL) como indicador de la regulación del mercado de trabajo para la etapa posterior a 1950.

El índice agregado de libertad de regulación resulta de la media aritmética no ponderada de los tres subíndices.

## Regulación de los negocios

### Administración pública imparcial

El índice agregado se ha obtenido como la media aritmética no ponderada de los tres índices.

Cuadro 1

Estructura legal y derechos de propiedad	Valor del dinero	Comercio internacional	Regulación
Independencia judicial	Tasa de inflación	Protección nominal ponderada	Regulación del mercado crediticio
Tribunales imparciales	Variabilidad de la inflación	Movilidad de los factores	Regulación del mercado laboral
Integridad del sistema legal	Diferencial del crecimiento de la cantidad de dinero	Premio del mercado negro (desde 1950)	Regulación de los negocios
Cumplimiento de contratos			

## Índice agregado de libertad económica

A continuación, los índices de cada dimensión (derechos de propiedad, valor del dinero, apertura internacional, regulación) se combinan mediante una media aritmética no ponderada en un índice histórico de libertad económica (HIEL), que oscila entre 0 y 10.

$$HIEL = (ILE_{\text{derechos de propiedad}} + ILE_{\text{dinero}} + ILE_{\text{apertura}} + ILE_{\text{regulación}}) / 4$$

## Alerta: ¿Cómo medir cambios en el índice?

¿Cuánto ha aumentado la libertad económica?

Dado que el índice tiene límites superior e inferior (varía entre 0 y 10), el uso de medidas convencionales para resumir su evolución, tales como su cambio porcentual o la tasa logarítmica de variación resultan inadecuadas, puesto que los incrementos que se logran para valores iniciales bajos del índice no pueden alcanzarse cuando los valores iniciales son altos. Es preferible, pues, considerar la diferencia absoluta de libertad económica con respecto al límite superior (10) en el punto inicial considerado, y calcular entonces la reducción relativa de esa diferencia en un determinado período. Así, el aumento de la libertad económica se mide como proporción del máximo aumento posible.

Por ejemplo, para el promedio (no ponderado por la población) de los países de la OCDE, la diferencia o déficit inicial con respecto al límite superior (10) era, en 1850/54, de 3,48 puntos. Entre 1850/54 y 2016/20 se redujo a 1,36 puntos. Por tanto, la reducción de la diferencia inicial ha sido de un 61 por ciento  $[(3,48 - 1,36)/3,48 = 0,61]$ .

Sin embargo, el enfoque de reducción relativa de la diferencia inicial no es aditivo. Así, la suma de reducción de la diferencia inicial para dos períodos consecutivos, 1850-1814 y 1914-1950 no es idéntica a la reducción de la diferencia inicial entre 1850 y 1950.

## Referencias bibliográficas

Gwartney, J., R. Lawson, J. Hall, y R. Murphy (2022), *Economic Freedom of the World: 2022 Annual Report*, Vancouver: Fraser Institute.

Prados de la Escosura, L. (2023), *Economic Freedom in Retrospect* (mimeo)

Prados de la Escosura, L. (2016), *Economic Freedom in the Long Run: Evidence from OECD Countries (1850-2007)*, *Economic History Review* 69(2): 435-468.

# FUENTES Y PROCEDIMIENTOS

## Appendix. Historical Index of Economic Liberty (HIEL): Sources and Procedures

Four dimensions of economic freedom are distinguished: legal system and property rights, sound money, international openness, and regulation.

For each dimension of economic freedom a consistent index over space and time has been computed on the basis of different indicators. The period considered is that of the spread of modern capitalism, namely, the epoch covering from the emergence of free trade and laissez faire in the mid-nineteenth century to the present.

When the indicator's value is inversely related to the degree of economic freedom, it has been transformed into index form using the expression

$$I_{ij} = 10 * (V_{MAX} - V_{ij}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$  its maximum and minimum values

Alternatively, when the value of the indicator is directly related to the value of economic freedom, it is the following expression the one used,

$$I_{ij} = 10 * (V_{ij} - V_{MIN}) / (V_{MAX} - V_{MIN})$$

Thus, in either case the resulting index of economic freedom ranges between 0 (minimum) and 10 (maximum).

## Area 2 Legal System and Property Rights

Indicators A) to C) have been selected from the **V-Dem** database (Coppedge et al., 2022) (the series code appears in brackets).

**A) Judicial Independence.** It combines two sub-indices:

- High Court Independence (v2juhcind)
- Low Court Independence (v2juncind)

### B) Impartial Courts

- Judicial corruption decision (v2jucorrdc)

**C) Integrity of the Legal System.** This index results of combining the sub-indices

- *Judicial accountability* (v2juacctn)
- *Compliance with high court* (v2juhccomp)
- *Compliance with the judiciary* (v2jucomp)
- *Transparent laws with predictable enforcement* (v2cltrnslw)
- *Access to justice for men and women* (v2clacjstm and v2clacjstw)

**D) Contract Enforcement.** The Contract-Intensive Money (CIM) proxies it.

CIM measures the percentage of deposits in money supply:  $CIM = (M2 - C)/M2$ , in which C represents currency outside banks and M2 the money supply including all (current and term) deposits.

In the construction of the transformed index, the range within which CIM fluctuates, 1 and 0, has provided the upper and lower bounds. A shortcoming of CIM estimates for countries in early stages of economic development derives from the use by the public of alternative options to deposits (i.e., bills of exchange) that enlarged in practice money supply, with the consequence of a downward bias in CIM. As a crude correction, I have assumed a 'floor' of 0.2 for CIM.

## Monetary aggregates

The sources for sources used for each country are,

**Australia**, Vamplew (1987), up to 1983; IMF, 1984-1958; Reserve Bank of Australia (RBA), 1959-2020.

**Austria**, (Austria-Hungary up to 1913), Jobst and Scheiber (2014), currency outside banks; Komlos (1987), demand and time and savings deposits; Mitchell (2008), 1925-37, 1946-53; IMF, 1953-1996; Österreichische Nationalbank (OeNB), 1997-2020 <https://www.oenb.at/isaweb/report/do?lang=EN&report=1.3.2>

**Belgium**, Mitchell (2008), banknote in circulation and time and savings deposits, 1850-1950; Banks (2010), demand deposits, except for 1870-74 in which the level for 1875 is projected backwards with banknotes in circulation; Mitchell (2008), 1950-68; IMF, 1969-2012; 2013-2020, money in circulation, IMF; money supply, JST v.6.

**Canada**, Mitchell (2008), 1856-1913; McInnis (2001), 1871-1913; Canadian Historical Statistics, 1913-68; Bank of Canada, 1868-2020.

**Denmark**, Mitchell (2008), 1850-1948; IMF, 1948-2020.

**Finland**, Mitchell (2008), 1862-1950; IMF, 1950-2012; 2013-2020, money in circulation, IMF; money supply, JST v.6.

**France**, Mitchell (2008), 1850-1947; Saint-Marc (1983), demand deposits, 1850-1944; IMF, 1948-2012; 2013-2020, money in circulation, IMF; money supply, JST v.6.

**Germany**, Mitchell (2008), 1850-1920, 1923, 1944; Ritschl (2002), 1924-1943; IMF, 1950-2012; 2013-2020, money in circulation, IMF; money supply, JST v.6.

**Greece**, Lazaretou (2014), 1850-1939; IMF, 1953-2000; Bank of Greece, 2001-2020. Estimates for 1939 and 1946-52 were computed by projecting the CIM level for 1953 with an alternative CIM derived with M1 from Mitchell (2008).

**Ireland**, Mitchell (2008), 1913-32; Gerlach and Stuart (2014), 1932-2012; 2013-2020, money in circulation, IMF; money supply, JST v.6.

**Italy**, de Bonis et al. (2012), 1861-2010; 2010-2020, money in circulation, IMF; money supply, JST v.6.

**Japan**, Currency outside banks, Mitchell (2008), 1913, 1925-39, 1950-52; Deposits, Patrick (1967), 1888-1910; Yamamura (1972), 1911-1926. Estimates for 1873-87, 1927-39, and 1950-52 were computed with Mitchell (2008) re-scaled to match the levels for 1888, 1926,

and 1953, respectively. IMF, 1953-2001; Bank of Japan, 2001-2020.

**Netherlands**, 1850-1912, Data on demand deposits is lacking. The persistence of the prolongatie market explains the slow development of deposits in Dutch commercial banking (Jonker, 1997: 101-102) and, perhaps, why there is no record of demand deposits. In fact, the public used money put on prolongatie as a form of interest-bearing demand deposits backed by securities, and thus it provides a substitute for demand deposits (I owe this remark to Joost Jonker). As a crude alternative, M1 (that is, currency outside banks and demand deposits) was estimated over 1850-1912 by projecting its level in 1913 backwards with data on currency outside banks from Mitchell (2008). Time and savings deposits also come from Mitchell (2008). Mitchell (2008), 1918-50; IMF, 1950-2012; 2013-2020, money in circulation, IMF; money supply, JST v.6.

**New Zealand**, Currency outside banks, Mitchell (2008), 1870-1939; IMF, 1950-88; Reserve Bank of New Zealand, 1988-2020. Demand deposits, 1850-1913, Statistics New Zealand; Time and savings deposits, Mitchell (2008); All deposits, Statistics New Zealand, 1925-64; IMF, 1965-1988; Reserve Bank of New Zealand, 1988-2020.

**Norway**, Eitrheim, Klovland, and Qvigstad (2022).

**Portugal**, Reis (1990), 1854-1912; Reis (2001), 1850-53, 1913-50; Pinheiro (1997), 1950-95; IMF, 1996-2012; 2013-2020, money in circulation, IMF; money supply, JST v.6.

**Spain**, 1850-55, Tortella (1982), currency in circulation, and Tedde (1999), notes in circulation. 1856-73, Banco de España (1970), currency outside banks; 1850-73, Martín-Aceña and Pons (2005), demand deposits; time and savings deposits: Tortella's (1985) deposits estimates less sight deposits in private banks (Martín-Aceña and Pons, 2005), provide an estimate of time deposits, to which I added non-banking savings deposits from Titos (1999). 1874-99, Tortella (1974); 1900-1935, Martín-Aceña (1985); 1941-2000, Martín-Aceña and Pons (2005); IMF, 2000-2012; 2013-2020, money in circulation, IMF; money supply, JST v.6.

**Sweden**, 1850-2012, Edvinsson and Ögren (2014); Statistics Sweden, 2012-2020.

**Switzerland**, Historical Statistics of Switzerland, 1851-1950, In the absence of data on time and savings deposits, it was assumed that it moved along demand deposits, so the level of total deposits in 1906 was backwards projected with the data on demand deposits; Swiss National Bank (2023), 1950-2020.

**United Kingdom**, Currency (notes and coin) in the hands of the public//in circulation, Bank of England. 1850-70, Currency outside banks, 1850-70. Two alternative estimates were derived and its average taken. On the one hand, Mitchell (1988), coin level for 1870 was backwards projected with Huffman and Lothian (1980) figures and added up to Mitchell (2008) banknotes in circulation. On the other, Hills et al. (2010) currency outside banks in 1870 was projected backwards with Huffman and Lothian (1980) total figures for coin and notes outside banks. 1871-1981, the average of estimates by Hills et al. (2010) and by Capie and Webber (1985) was used. From 1982 onwards, Hills et al. (2010) was employed. Deposits, Collins (1983), demand deposits (derived from net public liabilities of commercial banks, which include notes and deposits); and Mitchell (1988, 2008), savings deposits. 1871-1981, Capie and Webber (1985); 1982-2009, Hills et al. (2010); 2010-2020, Bank of England. Pre-1982 figures were adjusted to match the level of 1982 derived from data in Hills et al. (2010).

**United States**, 1850-66, Anderson (2003), currency outside banks derived by projecting its level in 1867 backwards with the series of all notes and coin; figures for all deposits obtained by projecting backwards Anderson (2003) level for 1867 with the series of deposits provided by Mitchell (2008); Anderson (2003), 1867-2002; FRED, 2003-2020.

**Note:** In the Eurozone or Euro-Area, since the introduction of the Euro, there are data on 'national contributions to monetary aggregates' rather than national aggregate. This is due to the fact that the European Central Bank does not publish data on national contributions to euro area monetary aggregates (and counterparts) because for some components the allocation by country is not straightforward. See

[https://www.oenb.at/isaweb/report.  
do?lang=EN&report=13.7](https://www.oenb.at/isaweb/report.do?lang=EN&report=13.7)

### A3 Sound Money

#### A) Inflation Rate

The consumer price index (CPI) has been used as the measure of inflation for this component. When the CPI was unavailable, the implicit GDP deflator was used. To be consistent with the view that price stability is what guarantees economic freedom the absolute value of inflation has been considered. It has been transformed into index form using the expression

$$I_{ij} = 10^*(V_{MAX} - V_{ij}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$ , its maximum and minimum values, 50 and 0, respectively.

#### B) Standard Inflation Variability during the last five years

The GDP deflator was used as the measure of inflation for this component. When unavailable, the CPI was used. To be consistent with the view that price stability is what guarantees economic freedom the absolute value of inflation has been considered. it has been transformed into index form using the expression

$$I_{ij} = 10^*(V_{MAX} - V_{ij}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$ , its maximum and minimum values, 25 and 0, respectively.

#### C) Money Growth Differential

Derived as the absolute value of the difference between the average annual growth of the money supply in the last five years and the average annual growth of real GDP in the last ten years. M1 figures were used to measure the growth rate of the money supply. It has been transformed into index form using the expression

$$I_{ij} = 10^*(V_{MAX} - V_{ij}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$ , its maximum and minimum values, 50 and 0, respectively.

The following national sources, completed with Jordà-Schularick-Taylor (JST) and Gwartney et al., 2022 (EFW) datasets, have been used:

### **CPI and GDP Deflator and Volume**

**Australia**, Hutchinson and Ploeckl (2022).

**Austria**, CPI, Reinhart and Rogoff (2011), 1850-63; Jobst and Scheiber (2014), 1863-1913; Maddison (1991), 1913-39; IMF, since 1950; OECD, since 2000. GDP deflator, derived from nominal GDP, Mitchell (2008), 1925-37, and IMF, 1950-60, and real GDP, Maddison (2010). 1960 onwards, IMF (1960-70) and OECD (1970-2020). Real GDP, Schulze (1997), up to 1913; Maddison (2010), 1913-1990. Conference Board, 1990-2020.

**Belgium**, CPI, Maddison (1991), 1850-1939; IMF, 1950-2000; OECD; 2000 onwards.

GDP deflator, 1850-1913, Horlings (1997); 1925-39, average of Buyst (1997), income and expenditure, and Horlings (1997), output deflators; derived from nominal GDP (IMF) and real GDP (Maddison, 2010), 1946-60; OECD, GDP deflator, 1960 onwards. Real GDP, 1850-1913, Horlings (1997); 1925-39, average of Buyst (1997), income and expenditure, and Horlings (1997), output; Maddison (2010) and Conference Board, thereafter.

**Canada**, CPI, Geloso (2019), 1850-2015; OECD, 2015-2020. GDP deflator, Urquhart (1993), 1870-1950; IMF and OECD, since 1950. Real GDP, Urquhart (1993), 1870-1939; Maddison (2010) and Conference Board thereafter.

**Denmark**, CPI, Mitchell (2008), 1850-70; Maddison (1991), 1870-1950; IMF and OECD, since 1950. GDP deflator, Derived from nominal GDP, Hansen (1974), 1850-1939 and IMF, 1950 onwards, and real GDP from Maddison (2010). Real GDP, Maddison (2010), 1850-1990; Conference Board, 1990-2020.

**Finland**, CPI, Heikkinen (1997), 1850-1913; Hjerpe (1996), 1913-50; IMF, 1950-2000; OECD 2000 onwards. GDP deflator, derived from nominal GDP Hjerpe (1996), 1860-1960, and real GDP, Maddison (2010); 1960-2020, OECD. Real GDP, Maddison (2010), 1860-1990; Conference Board, 1990-2020.

**France**, CPI, Lévy-Leboyer and Bourguignon (1985), 1850-1913; Maddison (1991), 1913-50; IMF, 1950-2000; OECD, from 2000 onwards. GDP deflator, Toutain (1997), 1850-1950; IMF, 1950-2000; OECD, 2000-2020. Real GDP, Toutain (1997), 1820-1913, Maddison (2010), 1924-1990; Conference Board, 1990-2020.

**Germany**, CPI, Mitchell (2008), 1850-70; Maddison (1991), 1870-1939; IMF, 1950-93; DeStatistis [www.destatis.de](http://www.destatis.de), 1993-2000; OECD, 2000 onwards. GDP deflator, Ritschl and Spoerer (1997), 1901-44; IMF, 1960-2000; OECD, 2000-2020. Real GDP Burhop and Wolff (2005), 1851-1913; Ritschl and Spoerer (1997), 1913-50; Maddison (2010), 1950-1990; Conference Board, 1990-2020.

**Greece**, CPI, Mitchell (2008), 1914-1939; IMF, 1950-2000; OECD, 2000-2020.

GDP deflator, Kostelenos et al. (2007), 1850-1937; UN (1950), 1937-39; IMF, 1950-2000; OECD, 2000-2020. Real GDP Kostelenos et al. (2007), 1850-1939; IMF, 1950-1959; Conference Board, 1960-2020

**Ireland**, CPI, Mitchell (2008), 1914, 1925-33; Gerlach and Stuart (2015), 1933-2000; OECD, 2000-2020. GDP deflator, Gerlach and Stuart (2015), 1933-2000; OECD, 2000-2020. Real GDP, Maddison (2010), 1922-1933; Gerlach and Stuart (2015), 1933-1990; Conference Board, 1990-2020.

**Italy**, CPI, ISTAT, 1861-2011; OECD, 2011-2020. GDP deflator, Baffigi (2013), 1861-2000; OECD, 2000-2020. Real GDP, Baffigi (2013), 1861-2000; Conference Board, 2000-2020.

**Japan**, CPI, Reinhart and Rogoff (2011), 1850-79; Maddison (1991), 1879-1939; IMF, 1950-2000 and OECD, 2000-2020, since 1950. GDP deflator, derived from nominal GDP, Ohkawa and Shinohara (1979), 1885-1951, and IMF, 1951-55, and real GDP (Maddison 2010), 1885-1955; Historical Statistics Japan, 1955-2003; OECD, 2003 onwards. Real GDP, Maddison (2010).

**Netherlands**, CPI, Maddison (1991), 1870-1950; IMF, 1950-2000; OECD, 2000-2020.

GDP deflator, Smits et al. (2000), 1850-1913; den Bakker et al. (1990), 1925-39; IMF, 1950-60; OECD, 1960-2020. Real GDP, , Smits et al. (2000), 1850-1913; Maddison (2010), 1913-1950; Conference Board, 1950-2020

**New Zealand**, CPI, Statistics New Zealand, 1857-2004; OECD, 2004 onwards. GDP deflator, Statistics New Zealand, 1860-2000; OECD, 2000 onwards. Real GDP, Statistics New Zealand, 1860-2004; Conference Board, thereafter.

**Norway**, CPI, GDP deflator, and real GDP, Grytten (2022).

Portugal, CPI, Valério (2001), 1850-1939; IMF, since 1950. GDP deflator and real GDP, Lains (2003), 1850-1910; Batista et al. (1997), 1910-53; Pinheiro (1997), 1953 onwards.

**Spain**, CPI, Maluquer de Motes (2005, 2006), 1850-2001; INE, <http://www.ine.es/>, since 2001. GDP deflator and real GDP, Prados de la Escosura (2017, updated)

**Sweden**, CPI, Edvinsson and Söderberg (2007), 1850-2006; Statistics\_Sweden, 2007

GDP deflator and real GDP, Schön and Krantz (2012)

**Switzerland**, CPI, Historical Statistics Switzerland, 1850-2000; OECD, 2000-2020.

GDP deflator, Historical Statistics Switzerland, 1851-2000; OECD, 2001-2020. Real GDP, Historical Statistics Switzerland, 1851-2000; Conference Board, 2000-2020.

**United Kingdom**, CPI, Hills et al. (2010), 1850-2000; OECD, 2000-2020 and GDP deflator, Hills et al. (2010), 1830-2000; OECD, 2000-2020. Real GDP, Hills et al. (2010), 1830-2000; Conference Board, 2000-2020

**United States**, Williamson (2022).

Austrian trade with the rest of the World can easily be computed. A difficulty appears as regards the share of Austrian trade with Hungary that represents domestic exports and retained or net imports and not just re-exports. Given the lack of information, I decided to consider re-exports negligible and to attribute all the trade between Imperial Austria and Hungary to domestic exports and retained imports. The computed share of Austria in Austria-Hungary trade for 1880 was applied to trade figures for Dual Monarchy in earlier years in order to derive Austrian exports and imports back to 1850

**France**, Customs revenues, Mitchell (2008); imports, Lévy-Leboyer (1977), 1850-1913.

**Netherlands**, Smits et al. (2000), 1850-1913; 1925-39, customs revenues, Mitchell 2008); imports, den Bakker et al. (1990).

**New Zealand**, Customs revenues, Mitchell (2008); imports, Statistics New Zealand.

**Portugal**, Lains (1995) and Valério (2001).

**Spain**, Tena (2005).

#### Area 4 International Openness

**A) Tariffs.** Weighted nominal protection measured as the ratio of total tariff revenue to the value of total exports and imports

As the indicator's value is inversely related to the degree of economic freedom, it has been transformed into index form using the expression

$$I_{ij} = 10^*(V_{MAX} - V_{ij}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$  its maximum and minimum values set at 30 and 0

Data from Mitchell (2008) and World Bank (2013) for the post-1970 era, were complemented, when necessary, with national sources and EFW since 1999.

**Australia**, Vamplew (1987), 1850-1900; Mitchell (2008), post-1900.

**Austria**, Trade, crude computations from data on the share of Imperial Austria in Austria-Hungary trade derived from Eddie (1980) for 1880-1913 and extended back to 1850. Eddie (1980) provides Imperial Austria's share in Austria-Hungary trade and, therefore, trade by Imperial Austria can be derived, which includes re-exports to and from Hungary. Eddie presents shares of Austria in Hungary's trade, so

**B) Black Market Premium** measured as the absolute difference in logs between the official and the parallel (black market) exchange rate (from 1946 onwards).

Data for all countries come from Reinhart and Rogoff (2003, 2004) database except for Spain, for which a weighted measure from Prados de la Escosura et al. (2012) has been accepted. Since the indicator's value is inversely related to the degree of economic freedom, it has been transformed into index form using the expression

$$I_{ij} = 10^*(V_{MAX} - V_{ij}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$  its maximum and minimum values set at 50 and 0

#### C) International Factor Mobility

##### Capital

For the pre-1950 period I have built an index of capital mobility that assigns values over a 0-10 range to each country, depending on its currency convertibility. The values assigned in this exploratory exercise are, unfortunately, largely discretionary.

Thus, before 1914, a value of 10 has been assigned to those countries in the Gold Standard. For countries that did not belong to the Gold Standard, with convertible currencies or bimetallic standards,

as well as for those shadowing the Gold Standard, an initial value of 8 has been set. However, each country's value deviates from the initial level on the basis of its exchange rate volatility (ERV) against the Sterling (Table 1).

In the Interwar years (defined here as the period 1925-39), before the reintroduction of the Gold Standard as a Gold Exchange Standard, a value of 5 was attributed to the following countries: Belgium, Denmark, Greece, and Italy during 1925-26; France, Ireland, Norway, and Portugal (1925-28); Japan (1925-29), and Spain (1925-30). Countries in the Gold Exchange Standard were assigned a value of 7, lower than prior to 1914, as the international capital market was subjected to major dislocations and capital flows tapered in the 1920s and, especially, during the Depression (Eichengreen, 1992; Obstfeld and Taylor, 2004: 132-45).

**Table 1**  
**Assigned Capital Mobility Values to Degrees of Exchange Rate Volatility before 1914**

Exchange Rate Volatility	Capital Mobility Value
< 0.05	8
<0.1>0.05	7
<0.2>0.1	6
<0.3>0.2	5
<0.4>0.3	4

Then, after the convertibility into gold was suspended in the UK (1931), a value of 5 has been assigned to those countries whose currency was pegged to the Sterling. Thus, it applied Australia, New Zealand, Canada, Ireland, Portugal, Norway, Sweden, and Greece (after 1936). In the case of France, after the Gold Standard was abandoned (1936), the value attributed to the Franc was also 5 and this also extended to those currencies in the 'gold bloc' (Belgium, the Netherlands, Switzerland, and Italy). In those cases in which exchange control was introduced but the currency was still pegged to the Sterling or French Franc, the value was reduced to 3. These were the cases of Austria, Belgium (1935), Denmark, and Finland (after 1934), Japan, and New Zealand (1939). When in addition to exchange controls there were multiple exchange rates, the attributed value was 1 (Germany since 1932, Austria since 1938, Italy since 1937), and, in the case of Spain, a value of 0 was assigned since mid-1936, when its civil war

started.

Data come from Flandreau and Zumer (2004) (who described this measure as an index of vulnerability). I replicated the index for missing dates and countries on the basis of the information in Bordo and Schwartz (1996), Eichengreen (1992), Eichengreen and Flandreau (1996), League of Nations (1925-1939), and Reinhart and Rogoff (2003, 2004, 2010).

For the post-1950 period, Quinn and Todoña (2008) provide de jure measures of capital account and financial current account openness and I have taken their average. As these estimates only cover the period 1950-2004, I have projected them forward with Chinn and Ito (2021) KAOPEN index, a de jure measure of a country's capital account openness.

### Labour

*Freedom of Foreign Movement.* This indicator comes from the V-Dem database (Coppedge et al., 2022) (v2clfmove). As the value of the indicator is directly related to the value of economic freedom, it is the following expression the one used,

$$I_{ij} = 10 * (V_{ij} - V_{MIN}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$ , its maximum and minimum values.

### **Area 5 Regulation**

#### A) Credit Market Regulation

- *Private Sector Credit* proxied by the government fiscal deficit as a proportion of GDP.

Original values have been transformed into index form using the expression

$$I_{ij} = 10 * (V_{ij} - V_{MIN}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$ , its maximum and minimum values, 20 and -50 per cent.

The data come from Mauro et al. (2013), completed with JST and OECD. National sources have been used for Austria (Austria-Hungary), 1850-1913; Jobst and Scheiber (2014); Greece, 1850-1939; Lazaretou (2014); Portugal, Marinheiro (2006), and Spain, Comín (2005 and private communication).

- *Interest Rate Control* proxied by the real short-term interest rate, that is, the nominal short-term interest rate less inflation. Real interest rates have been transformed into index form using the expression

$$I_{ij} = IO^*(V_{Ij} - V_{MIN}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$  its maximum and minimum values, 20 and -20, respectively.

Data on short-run interest rates come from Homer and Sylla (2005) and JST, IMF and OECD, from 1950 onwards, unless expressed explicitly in country sources. Inflation rates come from the sources used for Area 2.

The national sources used are,

**Australia**, Vamplew (1987), 1850-1936; Homer and Sylla (2005), 1937-67; OECD, 1968-2020.

**Austria**, Jobst and Scheiber (2014), 1863-1913; Morys (private communication), 1925-39; IMF, since 1950. Homer and Sylla (2005), 1945-1966; OECD, 1967 onwards.

**Belgium**, Homer and Sylla (2005), 1850-1959; OECD, 1960-2020

**Canada**, McInnis (2001), 1871-1939; Homer and Sylla (2005), 1935-60 1950-89; IMF, 1990 OECD, 1960-2020.

**Denmark**, Abildgren (2005), 1875-2003; OECD, 2004-20.

**Finland**, Bank of Finland. 1867-69; JST6, 1870-1969; OECD, 1970-2020.

France, Lévy-Leboyer and Bourguignon (1985), 1850-1913; Homer and Sylla (2005), 1914-1969; OECD, 1970-2020..

**Germany**, Homer and Sylla (2005), 1850-1913, 1925-1939; IMF, since 1950-2011; OECD, 2012-2020.

**Greece**, Lazaretou (2014), 1850-1939; IMF, 1950-1994; OECD, 1995-2020.

**Ireland**, JST6, 1923-1932; Gerlach and Stuart (2014), 1933-2012; OECD, 2013-2020.

**Italy**, de Bonis et al. (2012), 1862-1884; JST6, 1885-1914, 1922-70; Cotula et al. (1996), 1915-21; OECD, 1971-2020.

**Japan**, Homer and Sylla (2005), 1883-1939; Historical Statistics Japan, 1950-2000; IMF, 2001-20.

**Netherlands**, Homer and Sylla (2005), 1850-69, 1900-59; JST6, 1870-99, 1913-14, 1942-45; OECD, 1960-2020.

**New Zealand**, Homer and Sylla (2005), 1934-47; Statistics New Zealand, 1948-1973; OECD, 1974-2020. The 1934 level was backwards projected to 1912 with the Nominal Mortgage Interest Rate and, then, to 1859, with Australia's interest rate series.

**Norway**, Eitrheim et al. (2022).

**Portugal**, Reis (2007), 1863-87; Flandreau and Zumer (2004), 1888-90; Valério (2001) and Pinheiro (1997), 1891-69; OECD, 1970-2020.

**Spain**, Tortella (1973), Banco de Barcelona, 1850-1873; Martín-Aceña and Pons (2005), 1874-1976; OECD, 1977-2020

**Sweden**, Homer and Sylla (2005), 1850-55; Waldeström (2007), 1856-2000; OECD, 2000-2020.

**Switzerland**, Swiss National Bank, 1837-2004; OECD, 2005-2020.

**United Kingdom**, 1815-2020, Officer (2022).

**United States**, Officer (2022).

## B) Labour Market Regulation

- *Freedom of Domestic Movement* (v2xcl\_dmve). This indicator measures the ability of citizens to move freely across regions within a country and to establish permanent residency where they wish.

- *Freedom from Forced Labour* (v2xcl\_slave). This indicator measures whether adult citizens are free from servitude and other kinds of forced labour.

Both indicators come from the V-Dem database (Coppedge et al., 2022). Their original values have been transformed into index form using the expression

$$I_{ij} = IO^*(V_{Ij} - V_{MIN}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$  its maximum and minimum values.

- *Employment Protection Legislation*. The OECD (2020) aggregate index of employment protection legislation for 1985-2019 has been extended back to 1950 with estimates in Crafts (2006) and Allard (2005). Since Crafts' indices are provided at period averages (1960-64, 1965-72, 1973-79, 1980-87), these average values have been assigned to each year in each period.

Levels for 1960 have been projected backwards to 1950 with Allard's index. It has been transformed into index form using the expression

$$I_{ij} = 10^* (V_{MAX} - V_{ij}) / (V_{MAX} - V_{MIN})$$

Where  $V_{ij}$  represents the value of country i indicator at year j and  $V_{MAX}$  and  $V_{MIN}$  its maximum and minimum values, 5 and 0.

### C) Business Regulation

- *Impartial Public Administration*. This indicator comes from the V-Dem database (Coppedge et al., 2022) (v2clrspct).

Baffigi, A. (2013), "National Accounts, 1861-2011", in G. Toniolo (ed.), *The Oxford Handbook of the Italian Economy since Unification*, Oxford: Oxford University Press, pp. 157-186.

Bakker, G. P. den, Huitker, T. A., and van Bochove, C. A. (1990), *The Dutch Economy 1921-1938:Revised Macroeconomic Data for the Interwar Period*, Review of Income and Wealth 36: 187-206.

Bank of England (2018), *A Millennium of Macroeconomic Data for the UK*. The Bank of England's collection of historical macroeconomic and financial statistics, Version 3.1 (August 2018)  
<https://www.bankofengland.co.uk/statistics/research-datasets>

### References

Abildgren, K. (2005), *A historical perspective on interest rates in Denmark 1875-2003*, Danmarks Nationalbank Workings Papers 24  
[http://www.nationalbanken.dk/C1256BE9004F6416/side/WP\\_242005\\_A\\_historical\\_perspective\\_on\\_interestrates\\_in\\_Denmark\\_1875-2003/\\$file/WP\\_24.pdf](http://www.nationalbanken.dk/C1256BE9004F6416/side/WP_242005_A_historical_perspective_on_interestrates_in_Denmark_1875-2003/$file/WP_24.pdf)

Allard, G. (2005), Measuring Job Security over Time: In Search of a Historical Indicator for EPL (Employment Protection Legislation), IE Working Paper EC8-200-I

Anderson, R. (2003), Some Tables of Historical U.S. Currency and Monetary Aggregates Data, Federal Reserve Bank of St. Louis Working Paper 2003-006A  
<http://research.stlouisfed.org/wp/2003/2003-006.pdf>

Armingeon, K., D. Weisstanner, S. Engler, P. Potolidis and M. Gerber (2012), Comparative Political Data Set 1960-2010, Bern: Institute of Political Science, University of Bern  
[http://www.ipw.unibe.ch/content/team/klaus\\_armingeon/comparative\\_political\\_data\\_sets/index\\_eng.html](http://www.ipw.unibe.ch/content/team/klaus_armingeon/comparative_political_data_sets/index_eng.html)

Australian Bureau of Statistics, Australian System of National Accounts  
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/5204.02012-13?OpenDocument#Time>

Bank of Finland, Changes in the base rate from 1867  
[http://www.suomenpankki.fi/en/tilastot/tase\\_ja\\_korko/pages/tilastot\\_markkina-ja\\_hallinnolliset\\_korot\\_peruskoron\\_muutokset\\_en.aspx](http://www.suomenpankki.fi/en/tilastot/tase_ja_korko/pages/tilastot_markkina-ja_hallinnolliset_korot_peruskoron_muutokset_en.aspx)

Banks, A. S. (2010), Cross-National Time-Series Data Archive  
<http://www.databanksinternational.com/>

Batista, D., C. Martins, M. Pinheiro and J. Reis (1997), *New Estimates of Portugal's GDP 1910-1958*, Lisbon: Banco de Portugal.

Bonis, R. de, F. Farabullini, M. Rocchelli, and A. Salvio (2012), *Nuove serie storiche sull'attività di banche e altre istituzioni finanziarie dal 1861 al 2011: che cosa ci dicono?* QSE 26  
<http://www.bancaditalia.it/statistiche/storiche>

Bordo, M.D. and A.J. Schwartz (1996), "The Operation of the Specie Standard. Evidence for Core and Periphery Countries, 1880-1990", in J. Braga de Macedo, B. Eichengreen, and J. Reis (eds.), *Currency Convertibility: The Gold Standard and Beyond*. London: Routledge, pp. 11-83.

Burhop, C. and G. B. Wolff (2005), *A Compromise Estimate of German Net National Product, 1851-1913, and its Implications for Growth and the Business Cycle*, Journal of Economic History 65 (3): 613-657

Buyst, E. (1997), New GNP estimates for the Belgian economy during the Interwar period, Review of Income and Wealth 43: 357-375.

- Capie, F.H. and A. Webber (1985), *A Monetary History of the United Kingdom, 1870–1982*, Volume 1, London: Routledge
- Chinn, M.D. and H. Ito (2021), The Chinn-Ito Financial Openness Index 2019 Update  
[http://web.pdx.edu/~ito/Chinn-Ito\\_website.htm](http://web.pdx.edu/~ito/Chinn-Ito_website.htm)
- Chinn, M. D. and H. Ito (2006), *What Matters for Financial Development? Capital Controls, Institutions, and Interactions*, Journal of Development Economics 81(1): 163-192.
- Clague C., P. Keefer, S. Knack, and M. Olson (1999), *Contract-intensive Money: Contract Enforcement, Property Rights, and Economic Performance*, Journal of Economic Growth 4: 181–211
- Collins (1983), *Long-Term Growth of the English Banking Sector and Money Stock, 1844-80*, Economic History Review 36(3): 374-394.
- Conference Board (2022), Total Economy Database  
<https://www.conference-board.org/data/economydatabase/total-economy-database-productivity>
- Coppedge, M. et al. (2022), V-Dem [Country-Year/Country-Date] Dataset v12, Varieties of Democracy (V-Dem) Project.  
<https://doi.org/10.23696/vdemds22>
- Crafts, N. (2006), *Regulation and Productivity Performance*, Oxford Review of Economic Policy 22: 186-202.
- DeStatistis Germany Statistisches Bundesamt  
[www.destatis.de](http://www.destatis.de)
- Eddie, S. M. (1980), *Austria in the Dual Monarchy: Her Trade within and without the Customs Union*, East Central Europe 7: 225–247.
- Edvinsson, R. and A. Ögren (2014), *Swedish Money Supply, 1620–2012*, in R. Edvinsson, T. Jacobson and D.I. Waldenström (eds.), *Historical Monetary and Financial Statistics for Sweden*, Vol. II House Prices, Stock Returns, National Accounts, and the Riksbank Balance Sheet, 1620–2012 Stockholm: Sveriges Riksbank and Ekerlids.
- Edvinsson, R. and J. Söderberg (2007), *The evolution of Swedish consumer prices 1290–2008*, Review of Income and Wealth 57 (2): 270-292.
- Edvinsson, R. and J. Söderberg (2007), *The evolution of Swedish consumer prices 1290–2008*, in R. Edvinsson, T. Jacobson, and D. Waldenström (eds.), *Exchange Rates, Prices, and Wages, 1277–2008*, Stockholm: Ekerlids Förlag, pp. 412-452  
<http://www.riksbank.se/en/The-Riksbank/Research/Historical-Monetary-Statistics-/Prices/>
- Edvinsson, R. (2011), *Money Supply, 1871-2006*, In Sveriges Riksbank, *Historical Monetary Statistics of Sweden 1668-2008*  
<http://www.riksbank.se/en/The-Riksbank/Research/Historical-Monetary-Statistics-/Money-supply/>
- Eichengreen, B. 1992, *Golden Fetters. The Gold Standard and the Great Depression, 1919-1939*. Oxford: Oxford University Press.
- Eichengreen, B. and M. Flandreau (1996), *The Geography of the Gold Standard*, in J. Braga de Macedo, B. Eichengreen, and J. Reis (eds.), *Currency Convertibility: The Gold Standard and Beyond*. London: Rutledge, pp. 113-143.
- Eitrheim, Ø., J.T. Klovland and J.F. Qvigstad (eds.) (2022), *Historical Monetary and Financial Statistics for Norway*, Norges Banks Skriftserie Occasional Papers No. 57  
<https://www.norges-bank.no/>
- Federal Deposit Insurance Corporation, Deposits FDIC Insured Commercial Banks US and Other Areas Balances at Year End, 1934-2011  
<http://www2.fdic.gov/hsob/index.asp>
- Federal Reserve Bank St. Louis (FRED) Monetary Aggregates  
<https://fred.stlouisfed.org/searchresults?st=Monetary+aggregates>
- Flandreau, M. and F. Zumer (2004) *The Making of Global Economic Data Finance 1880-1913*, Paris: OECD.
- Geloso, V. (2019), *A Price Index for Canada, 168860-1950*, Canadian Journal of Economics 52(2): 526-560.

- Gerlach, S. and R. Stuart (2014), *Money demand in Ireland, 1933-2012*, Central Bank of Ireland Research Technical Paper 08/RT/14
- Grytten, O.H.(2022a), *Annual Cost of Living/Consumer Price Indices, 1492-2021*, in Eitrheim, Klovland and Qvigstad (eds.) (2022), pp. 527-566.
- Grytten, O.H. (2022b), *Norwegian GDP, 1816-2021* in Eitrheim, Klovland and Qvigstad (eds.) (2022), pp. 429-470.
- Gwartney, J., R. Lawson, J. Hall, and R. Murphy (2022), *Economic Freedom of the World: 2022 Annual Report*, Vancouver: Fraser Institute.
- Hansen, S.A. (1974), *Økonomisk vækst i Danmark*, Copenhagen: Akademisk Forlag
- Hayek, F.A. (1960, 2006), *The Constitution of Liberty*, Abingdon: Routledge.
- Heikkinen, S. (1997), *Labour and the Market: Workers, Wages and Living Standards in Finland, 1850-1913*, Helsinki: Finish Society of Sciences and Letters.
- Hills, S., R. Thomas and N. Dimsdale (2010), *The UK Recession in Context — What Do Three Centuries of Data Tell Us?*, Bank of England Quarterly Bulletin 50 (4): 277-291. Statistical Annex  
[www.bankofengland.co.uk/publications/.../threecenturiesofdata.xls](http://www.bankofengland.co.uk/publications/.../threecenturiesofdata.xls)
- Historical Statistics of Canada  
<https://www150.statcan.gc.ca/n1/en/catalogue/11-516-X#wb-auto-2>
- Historical Statistics of Japan, Statistics Bureau  
<https://www.stat.go.jp/english/data/index.html>
- Historical Statistics of Switzerland online  
<http://www.fsw.uzh.ch/histstat/main.php>  
 accessed on 8 February 2013
- Hjerpe, R. (1996), *Finland's Historical National Accounts 1860-1994: Calculation Methods and Statistical Tables*, Jyväskylä: J.Y.H.L.
- Homer, S. and R. Sylla (2005), *A History of Interest Rates*, New York: John Wiley & Sons.
- Horlings, E. (1997), *The Contribution of the Service Sector to Gross Domestic Product in Belgium, 1835-1990*, Utrecht: Universiteit Utrecht 1997 (mimeo)
- Huberman, M. and W. Lewchuk (2003), *European Economic Integration and the Labour Compact, 1850-1913*, European Review of Economic History 7: 3-41
- Huberman, M. and C. M. Meissner (2007), *Are Your Labor Standards Set in China? Evidence From the First Great Wave of Globalization, 1870-1914*. Unpublished Manuscript, Université de Montréal
- Huffman, W.E. and J.R. Lothian (1980), *Money in the United Kingdom, 1833-80*, Journal of Money, Credit and Banking 12 (2), Part 1: 155-174.
- Hutchinson, D. and F. Ploeckl (2022), *What Was the Australian GDP or CPI Then?*, MeasuringWorth.  
 URL: <http://www.measuringworth.com/australiadata/>
- International Monetary Fund (IMF), International Financial Statistics (IFS)  
<http://elibrary-data.imf.org/>
- Instituto Nacional de Estadística (INE)  
<http://www.ine.es/>
- ISTAT, L'Archivio delle Statistiche Italiane. Serie Storiche  
[http://seriesstoriche.istat.it/index.php?id=7&user\\_100ind\\_pi1\[id\\_pagina\]=55&cHash=0620098d1bf4a155ae2299430ca60fe6](http://seriesstoriche.istat.it/index.php?id=7&user_100ind_pi1[id_pagina]=55&cHash=0620098d1bf4a155ae2299430ca60fe6)
- Jobst, C. and T. Scheiber (2014), *Austria-Hungary, from 1863 to 1914*, in S. Lazarou and T. Scheiber (eds.), South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II, Athens, Sofia, Bucharest, Vienna: Bank of Greece, Bulgarian National Bank, National Bank of Romania, Oesterreichische Nationalbank, pp. 55-100.
- Jonker, J.P.B. (1997), *The Alternative Road to Modernity: Banking and Currency, 1814-1914*, M. Hart, J. Jonker, and J.L. van Zanden (eds.), A Financial History of the Netherlands, Cambridge: Cambridge University Press, pp. 94-123.
- Johnston, L\_ and S.H. Williamson (2022), *What Was the U.S. GDP Then?* MeasuringWorth, 2022  
<http://www.measuringworth.org/usgdp/>

- Jordá, O., K. Knoll, D. Kuvshinov, M. Schularick, and A.M. Taylor (2019), *The Rate of Return on Everything, 1870–2015*, Quarterly Journal of Economics 134(3): 1225–1298.
- Jordà, O., M. Schularick, and A.M. Taylor (2017), *Macrofinancial History and the New Business Cycle Facts*, in M. Eichenbaum and J.A. Parker (eds.), NBER Macroeconomics Annual 2016, vol. 31, Chicago: University of Chicago Press.
- Jordà-Schularick-Taylor Macrohistory Database  
<https://www.macrohistory.net/database/>
- Kennedy, K. A. (1971), *Productivity and Industrial Growth. The Irish Experience*, Oxford: Clarendon
- Eitrheim, Ø., J.T. Klovland and J.F. Qvigstad (2022), *Historical Monetary and Financial Statistics for Norway*, Norges Bank Occasional Paper No. 57, Oslo: Norges Bank.
- Komlos, J. (1987), *Financial Innovations and the Demand for Money in Austria-Hungary, 1867-1913*, Journal of European Economic History 16 (3): 587-606.
- Kostelenos, G., D. Vasiliou, E. Kounaris, S. Petmezas and M. Sfakianakis (2007), *Sources of the Economic History of Modern Greece: Quantitative Data and Statistical Series: Greek Domestic Product, 1830-1939*, Athens: Centre for Planning and Economic Research and the National Bank of Greece
- Lains, P. (1995), *A Economia portuguesa no século XIX. Crescimento económico e comércio esterno 1851-1913*, Lisbon: Instituto de Ciências Sociais.
- Lains, P. (2003), *Os Progressos do Atraso. Uma Nova História Económica de Portugal, 1842-1992*, Lisbon: Imprensa de Ciências Sociais
- Lazaretou, S. (2008), *Banking and Central Banking in Pre-World War II Greece: Money and Currency Developments*, Bank of Greece Working Papers SEEMHN 86.
- Lazaretou, S. (2014), *Greece, from 1833 to 1949* in S. Lazaretou and T. Scheiber (eds.), *South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II*, Athens, Sofia, Bucharest, Vienna: Bank of Greece, Bulgarian National Bank, National Bank of Romania, Oesterreichische Nationalbank, pp. 101-170.
- League of Nations (1925-1939), *Statistical Yearbook*, Geneva: League of Nations.
- Lévy-Leboyer, M. (1977), *La balance des paiements et l'exportation des capitaux français*, in M. Lévy-Leboyer (ed.), *La position internationale de la France: aspects économiques et financiers, XIXe-XXe siècles*, Paris: EHEES Librairie Jean Touzot, pp. 75-142.
- Lévy-Leboyer, M. and F. Bourguignon (1985), *L'économie française au XIXe siècle*, Paris: Economica
- McInnis, R. M. (2001), *Historical Canadian Macroeconomic Dataset, 1871-1994*, Department of Economics, Queen's University, Kingston, Ontario.
- Maddison (1991), *Dynamic Forces in Capitalist Development*, Oxford: Oxford University Press.
- Maddison, A. (2010), Statistics on world population, GDP and per capita GDP, 1-2008 AD, horizontal file  
<http://www.ggdc.net/maddison/>
- Maluquer de Motes, J. (2005a), *Consumo y precios*, in A. Carreras y X. Tafunell (eds.): *Estadísticas históricas de España. Siglos XIX y XX*, 3 vols., Bilbao: Fundación BBVA, III: 1247-1296.
- Maluquer de Motes, J. (2006), *La paradisíaca estabilidad de la anteguerra. Elaboración de un índice de precios de consumo en España, 1830-1936*, Revista de Historia Económica 24 (2): 333-382.
- Marinheiro, C. J. Fonseca (2006), *The Sustainability of Portuguese Fiscal Policy from a Historical Perspective*, Empirica 33 (2-3): 155-179, Dataset available at  
<http://www4.fe.uc.pt/carlasm/research/pdf/Data-CMarinheiro2006-Update2011.xlsx>
- Marshall, M.G. (2013), Polity IV Project: Political Regime Characteristics and Transitions, 1800-2012  
<http://www.systemicpeace.org/polity/polity4.htm>
- Marshall, M.G., T.R. Gurr and K. Jaggers (2013) Polity IV Project: Political Regime Characteristics and Transitions, 1800-2012 Dataset Users' Manual, Center for Systemic Peace  
<http://www.systemicpeace.org/inscr/p4manualv2012.pdf>

- Martín-Aceña, P. (1985), *La cantidad de dinero en España 1900-1935*, Madrid: Banco de España. Estudios de Historia Económica no. 12
- Martín-Aceña, P. (1988), *Una estimación de los principales agregados monetarios en España: 1940-1962*. Banco de España. Servicio de Estudios. Documento de trabajo 8807
- Martín-Aceña, P. and M.A. Pons (2005), *Sistema monetario y financiero*, in A. Carreras and X. Tafunell (eds.), *Estadísticas Históricas de España*, 3 vols., Bilbao: Fundación BBVA, II, 645-706.
- Mauro, P., R. Romeu, A. Binder, and A. Zaman (2013), *A Modern History of Prudence and Profligacy*, IMF Working Papers 13/5, International Monetary Fund, Washington D.C.
- Mitchell, B.R. (1988), *British Historical Statistics*, 2nd ed, Cambridge: Cambridge University Press.
- Mitchell, B. R. (2008), *International Historical Statistics 1750-2005*. London: Palgrave Macmillan, 3 vols.
- OECD (2008), *OECD Employment Outlook*, Paris: OECD
- OECD Statistics  
<http://www.oecd-ilibrary.org/statistics>
- OECD (2020), *Employment Outlook 2020: Worker Security and the COVID-19 Crisis*, Paris: OECD Publishing.
- Officer, L.H. (2022), *What Was the Interest Rate Then? MeasuringWorth*  
<http://www.measuringworth.com/interestrates/>
- Ohkawa, K. and M. Shinohara (1979), *Patterns of Japanese Economic Development. A Quantitative Appraisal*, New Haven: Yale University Press
- Obstfeld, M. and A.M. Taylor (2004), *Global capital markets. Integration, Crisis, and Growth*, New York: Cambridge University Press.
- Patrick, H.T. (1967), *Japan, 1868-1914*, in R. Cameron (ed.), *Banking in the Early Stages of Industrialization: A Study in Comparative Economic History*, New York: Oxford University Press, pp. 239-289.
- Pinheiro, M. (Ed.) (1997), *Séries longas para a economia portuguesa pós II Guerra Mundial. I. Séries Estatísticas*. Lisbon: Banco de Portugal  
<http://www.bportugal.pt/pt-PT/Estatisticas/PublicacoesEstatisticas/SLEPort/Paginas/SeriesLongasEconomiaPortuguesaPosIIGuerraMundial.aspx>
- Prados de la Escosura, L. (2017), *Spanish Economic Growth, 1850-2015*, London: Palgrave Macmillan.
- Prados de la Escosura, L. (2016), *Economic Freedom in the Long Run: Evidence from OECD Countries (1850-2007)*, *Economic History Review* 69(2): 435-468.
- Prados de la Escosura, L., J.R. Rosés, and I. Sanz-Villarroya (2012), *Economic Reforms and Growth in Franco's Spain*, *Revista de Historia Económica / Journal of Iberian and Latin American Economic History* 30 (1): 45-89.
- Quinn, D. and A.M. Toyoda (2008), *Does Capital Account Liberalization Lead to Growth*, *Review of Financial Studies* 21 (3): 1403-1449.
- Reinhart, C.M. and K.S. Rogoff (2003), *Background Material to A Modern History of Exchange Rate Arrangements: A Reinterpretation. Part I. The Country Chronologies and Chartbook; Part II. Parallel Markets and Dual and Multiple Exchange Rate Practices*, IMF  
<http://www.puaf.umd.edu/faculty/papers/reinhart/reinhart.htm>
- Reinhart, C.M. and K.S. Rogoff (2010), *From Financial Crash to Debt Crisis* NBER Working Paper 15795
- Reinhart, Carmen M., and Kenneth S. Rogoff (2011), *From Financial Crash to Debt Crisis*, *American Economic Review* 101: 1676-1706.  
<http://www.carmenreinhart.com/data/>
- Reis, J. (1990), *A Evolução da Oferta Monetária Portuguesa 1854-1912*, Lisboa: Banco de Portugal.
- Reis, J. (2001), *Moeda e crédito*, in N. Valério (ed.), *Estatísticas Históricas Portuguesas*, Lisboa: Instituto Nacional de Estatística, 2 vols., pp. 537-613.
- Reis, J. (2007), *An Art, not a Science? Central Bank Management in Portugal under the Gold Standard, 1863-1887*, *Economic History Review* 60 (4): 712-741

- Reserve Bank of Australia (RBA), Statistics  
<http://www.rba.gov.au/statistics/by-subject.html>
- Reserve Bank of New Zealand, Monetary Aggregates, 1988-2012  
<http://www.rbnz.govt.nz/statistics/tables/c1/>
- Ritschl, A. (2002), *Deutschlands Krise und Konjunktur. Binnenkonjunktur, Auslandsverschuldung und Reparationsproblem zwischen Dawes-Plan und Transfersperre 1924-1934*, Berlin: Akademie-Verlag.
- Ritschl, A., and Spoerer, M. (1997), *Das Bruttonsozialprodukt in Deutschland nach den amtlichen Volseinkommens- und Sozialproduktestatistiken 1901-1995*, Jahrbuch für Wirtschaftsgeschichte 2, 27-54.
- Saint-Marc, M. (1983), *Histoire Monétaire de la France, 1800-1980*, Paris: PUF.
- Schön, L. and O. Krantz (2012), *Swedish Historical National Accounts, 1560-2010*, Lund Papers in Economic History 123  
<http://www.ekh.lu.se/en/research/shna1560-2010>
- Schulze, M.S. (2000), *Patterns of Growth and Stagnation in the Late Nineteenth Century Habsburg Economy*, European Review of Economic History 4 (3): 311-340
- SEEMHN (2009), *Monetary Time Series of Southeastern Europe from the 1870s to 1914*, Bank of Greece, Working Paper SEEMHN 94
- Smits, J.P., E. Horlings and J.L. van Zanden (2000), Dutch GNP and its Components, 1800-1913, Groningen: Groningen Growth and Development Centre Research Monograph no. 5
- Statistics Bureau, Historical Statistics of Japan  
<http://www.stat.go.jp/english/data/chouki/03.htm>
- Statistics Canada: historical statistics of Canada  
<http://www.statcan.ca/>
- Statistics Netherlands, Historical Series  
<http://www.cbs.nl/en-GB/menu/themas/dossiers/historische-reeksen/cijfers/extra/historische-reeksen.htm>
- Statistics New Zealand, New Zealand Long Term Data Series (LTDS)  
[http://www.stats.govt.nz/browse\\_for\\_stats/economic\\_indicators/NationalAccounts/long-term-data-series/finance.aspx](http://www.stats.govt.nz/browse_for_stats/economic_indicators/NationalAccounts/long-term-data-series/finance.aspx)
- Sveriges Riksbank, Historical Monetary Statistics of Sweden 1668-2008  
<http://www.riksbank.se/en/The-Riksbank/Research/Historical-Monetary-Statistics-/>
- Swiss National Bank, Historical Time Series, http://  
[www.snb.ch/en/iabout/stat/statpub/histz/id/statpub\\_histz\\_actual](http://www.snb.ch/en/iabout/stat/statpub/histz/id/statpub_histz_actual)
- Swiss National Bank, Monetary Aggregates, 1984-2023  
[https://data.snb.ch/en/topics/snb/cube/snbmonagg?fromDate=1984-01&toDate=2023-03&dimSel=D0\(B\),D1\(B,S0,ET,GM1,S1,GM2,T,GM3\)](https://data.snb.ch/en/topics/snb/cube/snbmonagg?fromDate=1984-01&toDate=2023-03&dimSel=D0(B),D1(B,S0,ET,GM1,S1,GM2,T,GM3))
- Statistics Sweden, Money Supply, 1911-2012,  
[http://www.scb.se/Pages/TableAndChart\\_\\_\\_\\_\\_282808.aspx](http://www.scb.se/Pages/TableAndChart_____282808.aspx)
- Tedde, P. (1999), *El Banco de San Fernando, 1829-1856*, Madrid: Alianza.
- Titos Martínez, M. (1999), *Las Cajas de Ahorros (1853-1962)*, in P. Martín-Aceña and M. Titos Martínez (eds.), *El sistema financiero en España. Una síntesis histórica*, Granada: Universidad de Granada, pp. 135-161.
- Tortella, G. (1973), *Los orígenes del capitalismo en España. Banca, industria y ferrocarriles en el siglo XIX*, Madrid: Tecnos.
- Tortella, G. (1974), *Las magnitudes monetarias y sus determinantes*, in G. Tortella and P. Schwartz, eds., *La banca española en la Restauración*, 2 vols. Madrid: Tecnos. I, pp. 457-521.
- Tena, A. (2005), *Sector exterior*, in A. Carreras and X. Tafunell (eds.), *Estadísticas Históricas de España*, 3 vols., Bilbao: Fundación BBVA, II, 573-644.
- Tortella, G. (1982), *El circulante metálico en España: primeras aplicaciones de una estimación para el cálculo de la renta nacional*, Banco de España (Unpublished manuscript)

Tortella, G. (1985), *El Producto (Valor Añadido Bruto) del sector bancario español, 1856-1935. Una primera aproximación*, Banco de España (Unpublished manuscript).

Toutain, J.C. (1997), *Le produit intérieur de la France de 1789 à 1994. Économies et Sociétés XXXI. Série AF Histoire quantitative de l'économie française (Cahiers de l'ISMEA)*.

Urquhart, M.C. (1993), *Gross National Product, Canada 1870-1926: The Derivation of the Estimates*, Kingston: McGill-Queen's University Press.

Valério (ed.), *Estatísticas Históricas Portuguesas*, Lisboa: Instituto Nacional de Estatística, 2 vols.

Vamplew, W. (1987), *Australians. Historical Statistics*, Broadway: Fairfax, Syme and Weldon Associates.

Waldenström, D. (2007), *Interest rates and stock returns, 1856-2006*, Sveriges Riksbank, Historical Monetary Statistics of Sweden 1668-2008

<http://www.riksbank.se/en/The-Riksbank/Research/Historical-Monetary-Statistics-/Interest-and-stock-returns/>

Williamson, S.H. (2013), *What Was the U.S. GDP Then?* Measuringworth  
<http://www.measuringworth.org/usgdp/>

Williamson, S.H. (2022), *The Annual Consumer Price Index for the United States, 1774-Present*, MeasuringWorth.

URL: <http://www.measuringworth.com/uscpai/>

World Bank (2013), World Development Indicators  
<http://data.worldbank.org/data-catalog/world-development-indicator>

Yamamura, K. (1972), *Japan, 1868-1930: a Revised View*, in R. Cameron (1972), *Banking and Economic Development. Some Lessons of History*, New York: Oxford University Press, pp.



Leandro Prados de la Escosura  
Índice Histórico de Libertad Económica

Rafael Calvo, 39  
28010 Madrid  
Spain

T (+34) 91 396 86 00  
[info@frdelpino.es](mailto:info@frdelpino.es)  
[www.frdelpino.es](http://www.frdelpino.es)

