*Economic Freedom in Retrospect**

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Abstract
This paper analyses economic freedom for a sample of 21 OECD countries over the past 170 years on the basis of a new thoroughly revised *Historical Index of Economic Liberty* (*HIEL*). Long-term gains in economic freedom reached two-thirds of its potential maximum. The expansion of economic freedom was abruptly interrupted by the world wars and resumed after 1950, to peak in 2000 and stagnate thereafter. International openness has been its main contributing dimension, especially after 1950. Stability in the country ranking coexisted with a narrowing of the distance between countries' levels of economic freedom.

JEL Codes: E31, N40, O24, N40, P14

Keywords: Economic Freedom, Property Rights, Price Stability, Openness, Regulation, OECD

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1. Introduction

Economic liberty is a negative freedom that can be defined as the absence of coercion and interference in the actions of economic agents. The Fraser Institute (2023) and the Heritage Foundation (2023) have provided indices of economic freedom from 1970 and 1995, respectively. Some years ago I adapted the Fraser Institute's methodology to construct a retrospective index of economic freedom for a group of present-day advanced countries that constituted the OECD prior to its 1994 enlargement covering from the early phase of globalization in the mid-19th century to the eve of the Global Financial Crisis (Prados de la Escosura, 2016).[1] To obtain it I first estimated sub-indices for four out of the five *EFW* dimensions, specifically, property rights, price stability, international openness, and freedom from regulation, on the basis of a reduced number of indicators to match available historical evidence. Then the *Historical Index of Economic Liberty* [*HIEL*] was derived as the unweighted average these sub-indices.

In this paper, I present new estimates of economic freedom for the same sample of 21 countries resulting from a thorough revision of the *HIEL*, incorporating new indicators and spanning over a longer period, 1850-2020. Given the large share of world economic activity represented by the country sample considered here, this historical retrospect somehow captures economic liberty beyond the OECD club.

The paper's main findings are: 1) long-run but far from steady gains in economic freedom have achieved over the last 170 years, with two phases of expansion interrupted by the world wars and reaching its peak by the turn of the 21st century; 2) International Openness was economic freedom's main contributor, particularly after 1950; 3) stability in countries' ranking coexisted with a reduction in the distance between countries' levels of economic freedom; 4) gains in economic freedom from 1850-2007 were smaller for the new *HIEL* than for the old, in which Property Rights was the main driver.

In the rest of the paper, I discuss how to assess such an elusive concept as economic freedom (section 2). Then, I present the revised components of the index on

[1] Pre-1994 OECD included Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland*, Ireland, Italy, Japan, Luxemburg*, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey*, the UK, and the USA. *countries excluded for lack of historical data.

the basis of new indicators (section 3) and compare the resulting new *HIEL* and its dimensions' indices to the earlier estimates (section 4). Section 5 offers *HIEL* trends and examines the contribution of each of its dimensions to economic freedom and Section 6 provides a look at countries' specific behaviour. Section 7 concludes.

2. How to Assess Economic Freedom

A country may be depicted economically free to the extent that privately owned property is protected, contracts are enforced, prices remain stable, barriers to trade are small, and resources are (mainly) allocated through the market. An economic liberty index, if successfully constructed, will allow us to assessing the extent to which a country's institutions and policies comply with the principles of economic freedom.

Assessing economic liberty faces a serious challenge, hampered by unavoidable discretional decisions in the choice and transformation of variables (de Haan, 2003: 395). The Fraser Institute's *Economic Freedom of the World Index* (*EFW*) distinguishes five main dimensions of economic freedom: the size of government, the legal system and property rights, sound money, freedom to trade internationally, and regulation (Gwartney et al., 2022). I have chosen to exclude the size of government from the historical index and rely on the last four dimensions.[2]

A widely shared view is that the more a society relies on the market and the less on government intervention, the larger its economic freedom. However, freedom of economic activity implies 'freedom under the law, not the absence of all government action' (Hayek, 1960: 193). In fact, the government, as provider of protection to the individual from coercion, is essential for economic liberty (Friedman, 1962: 15, 22-36). To carry out its legitimate and limited role –which includes the provision of law and order, defence, protection of property rights, contract enforcement, and public goods-, the government requires resources that acquires through different means, including taxation, borrowing, and issuing money. But any government capable of these tasks is also capable of confiscating its citizens' wealth (Djankov et al., 2003: 596), so only when the government is enforcing the general law, no threat to economic freedom exists.

[2] Chauffour (2011) excluded the size of government from his economic freedom estimates and Ott (2018) recommended its exclusion.

In fact, it is the nature of government action rather than how active the government is, that is at stake. For example, in weak fiscal states, the inability to raise tax revenues reduces the provision of public services, so the share of government in total consumption is low (Besley et al., 2013: 206). However, it does not follow from it that weak fiscal states interfere less in individuals' economic decisions (Cf. Espuelas, 2012, on the case of Franco's Spain). In fact, historical evidence for Europe confirms that fiscal centralization (which increased tax revenues) and parliamentary control of public spending went hand-in-hand (Dincecco, 2011: 116-119), resulting in limited government and higher economic freedom. Moreover, as citizenship expands in advanced societies, the government's provision of public goods lowers the cost of market participation (North et al., 2009: 110-124).

Moreover, including the size of government into the index may be redundant as government restrictions are already captured by other dimensions of economic freedom. Besides, the share of government consumption in GDP has increased over time across the board (Chenery and Syrquin, 1975; Prados de la Escosura, 2007: 197, 208) and its inclusion may introduce a downward bias in a historical index of economic freedom.

The reduced forms chosen for each dimension considered, namely, the indices of legal system and property rights, sound money, international openness, and regulation, are consistent over space and time. Economic freedom indicators representing institutional (*de jure*) settings are preferable to outcomes (*de facto*) measures, even though the former may not capture informal institutions as the degree of enforcement varies over space and time (de Haan et al., 2003: 162-163; Woodruff, 2006: 121-122; Tabellini, 2010: 678, 710). However, due to the dearth of historical empirical evidence, indicators of institutional settings often need to be complemented with measures of outcomes (Glaeser et al., 2003: 275-279). In addition, cardinal and objective indicators have been given priority over ordinal and subjective indicators.

3. Economic Freedom Dimensions: New Indices

Let us now examine the available quantitative evidence available and describe the procedures used to construct indices for each of the four dimensions of economic freedom.

A previous caveat in the computation of the indices is that when the indicator's value is inversely related to the degree of economic freedom, it has been transformed into index form using the expression

$$I_{ij} = 10*(V_{MAX} - V_{ij}) / (V_{MAX} - V_{MIN}) \qquad (1)$$

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

$$I_{ij} = 10*(V_{IJ} - V_{MIN}) / (V_{MAX} - V_{MIN}) \qquad (2)$$

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

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

Legal System and Property Rights

The protection of persons and their legitimate property is at the core of economic freedom. In order to capture the evolution of the legal system and property rights indices a) to c) that represent institutional settings have been selected from the *V-Dem* database (Coppedge et al., 2022) and their values correspond to a transformation derived with expression (2).

a) *Judicial Independence*. It combines two sub-indices (*V-Dem* codes in brackets):

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

b) *Impartial Courts*. It combines

- Judicial corruption decision (v2jucorrdc)

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

- Judicial accountability (v2juaccnt)
- 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*. It is proxied by 'Contract Intensive Money' (*CIM*), which consists of the percentage of deposits in the money supply, an indicator of compliance with contracts and the security of property rights as it measures the proportion of transactions that rely on third party enforcement.

The index of legal system and property rights has been obtained as the unweighted arithmetic average of the four indices, with higher values representing higher degrees of liberty.

The new index replaces the previous one which represented the average of two sub-indices, Polity IV's 'Constraint on the Executive' (*EXCONST*), a measure of the degree of checks and balances, and 'Contract Intensive Money' (*CIM*) as an indicator of contract enforcement (Prados de la Escosura, 2016).

Sound Money

Stable prices preserve the value of money and represent an essential element of economic freedom. Following the *EFW*, three measures of 'sound' money have been considered: the inflation rate, as inflation erodes the value of property held in monetary instruments; the standard deviation of inflation, since inflation volatility distorts relative prices and alter long-term contracts; and money growth differential, namely, the difference between the growth rates of money supply (M1) in the last 5 years and real GDP in the last 10 years, as relative money growth fuels inflation.

As it is price stability that guarantees economic freedom, the absolute values of inflation levels and volatility and money differential growth have been used, that is, deflation and inflation are treated symmetrically here.[3] Their values have been transformed into index form using expression (1), with upper and lower values set at 50 and 0 for money differential growth and the inflation rate (measured by the CPI), and 25 and 0 for the variability of inflation (measured by the GDP deflator).

The index of sound money has been obtained as the unweighted arithmetic average of the three indices, based on outcomes, not institutional settings.[4] The index, therefore, relies on the same components as my previous estimates (Prados de la Escosura, 2016) except for improvements in data coverage.

International Openness

Freedom to enter and compete in international factor and commodity markets is a key dimension of economic liberty. The following indicators have been considered.

[3] Although 'good' deflations, that arise from positive supply shocks associated to productivity-driven growth (such as those of 1873-96 and 1921-29) could be differentiated from 'bad' deflations, associated with recessions (1919-21 and 1929-33) (Bordo and Filardo, 2005)

[4] It is worth noting that in so far inflation represents a tax, similar objections to the use of the size of government as a measure of economic freedom have been raised (de Haan and Sturm, 2000: 221).

A) Tariffs. Weighted nominal protection (*WNP*) measured as the ratio of total tariff revenue to the value of total exports and imports. *WNP* offers a long-run but crude and potentially downward biased (depending on the value of the good's price elasticity) measure of restrictions on international commodity trade (Prados de la Escosura, 2016), especially up to the 1930s, when non-tariff barriers (*NTB*) expanded, but tariffs and *NTB* tend to be correlated over the long run (Clemens and Williamson, 2012: 3).

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

C) International Factor Mobility

Capital

For the pre-1950 period I have built an index of capital mobility on the basis of international evidence on monetary regimes and the exchange rate, 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 discretional (See Appendix B).

For the post-1950 period, Quinn and Todoya (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 to 2020 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).

In the cases of Tariffs and Black Market Premium their values have been transformed into index form using expression (1), with maxima set as 30 and 50, respectively, and minima as 0. As for international mobility indicators, their values correspond to a transformation using expression (2).

The index of international openness has been obtained as an average of the different indices (only for post-1946 era in the case of the Black Market Premium) combining, thus, indicators of outcomes and institutional settings.

The new index is more comprehensive than the previous one (Prados de la Escosura, 2016) and takes international labour mobility on board since its restrictions constitute an important constraint on economic liberty (von Mises, 2006:19-22; Pritchett, 2006).

Regulation

Individuals' decision to engage in voluntary exchange can be hampered by government regulation with the result of restricting economic freedom.

Three areas of regulation have been considered: credit and labour markets and business activity.

A) Credit Market Regulation. It combines two indices,

- Private Sector Credit. It measures government borrowing relative to private-sector borrowing and it is proxied by the government fiscal deficit as a proportion of GDP.[5]

- Interest Rate Control. It is proxied by the real short-term interest rate, that is, the nominal short-term interest rate less inflation.

B) Labour Market Regulation. Laws and regulations affecting working conditions may restrict negative economic liberty. The index combines three sub-components,

- Freedom of Domestic Movement (v2xcl_dmove). This indicator from the *V-Dem* database 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, also from the *V-Dem* database, measures whether adult citizens are free from servitude and other kinds of forced labour.

- Employment Protection Legislation. This indicator aims at capturing the cost implications of labour market regulation, a view consistent with the notion that regulating workers' protection is an additional labour cost for firms. The OECD (2020) aggregate index of employment protection legislation from 1985 has been extended

[5] I depart here from the EFW which approximates the risk by the ratio of the government fiscal deficit to gross domestic saving. The fact that the relative size of gross domestic saving (% GDP) increases over time and with per capita income (Prados de la Escosura, 2007: 197) implies that such an indicator may provide a downward biased measure of economic freedom over time, as the denominator has a tendency to increase as time goes by. This is not necessarily the case with the budget deficit and that is why I have chosen it.

back to 1960 and, then, to 1950 with estimates in Crafts (2006) and Allard (2005), respectively. I have normalized the index between 0 and 10.

C) Business Regulation

- Impartial Public Administration (v2clrspct) is an indicator from the *V-Dem* database.

In the case of credit market regulation, the values of their indicators, government deficit and real interest rate, have been transformed into index form using expression (2), with their upper values set as 20, and their lower values as -50 and -20, respectively. In the business and labour market regulation, when indicators are derived from the *V-Dem* database, their values correspond to a transformation with expression (2). Lastly, in the case of employment protection legislation, expression (1) has been used, with maximum and minimum values of 5 and 0.

The index of freedom from regulation is derived as the unweighted average of the indices for three areas distinguished. The new regulation index is more comprehensive than the earlier one (Prados de la Escosura, 2016) incorporating business regulation and adding dimensions of labour market regulation as well as extending it back to 1850.

Table 1

Dimensions of the Historical Index of Economic Liberty (HIEL) and their Components

Legal System and Property Rights	***Sound Money***	***International Openness***	***Regulation***
Judicial Independence	*Inflation Rate*	*Weighted Nominal Protection*	*Credit Market Regulation*
Impartial Courts	*Inflation Variability*	*International Factor Mobility*	*Labour Market Regulation*
Integrity of the Legal System	*Differential Money Growth*	*Black Market Premium (post-1946)*	*Business Regulation*
Contract Enforcement			

Sources: See the text

Once indices of different dimensions of economic freedom have been constructed (Table 1), an unweighted arithmetic average of the indices for each

dimension of economic freedom provides the Historical Index of Economic Liberty (*HIEL*), which ranges between 0 and 10, has been computed.[6]

$$HIEL = (IEL_{\text{legal system \& property rights}} + IEL_{\text{sound money}} + IEL_{\text{openness}} + IEL_{\text{regulation}})/4 \quad (3)$$

4. New and Old Indices of Economic Freedom

Do the new and old indices of economic freedom differ significantly from each other? I have used an unweighted OECD country average to compare their evolution for each dimension of economic liberty and the aggregate *HIEL*.

It is worth noting that the number of countries covered rises over time. New Zealand and Italy indices can be only computed from 1858 and 1861, respectively, and Ireland's from 1922. Fortunately, the averages for alternative country samples starting from 1850, 1858, 1861, and 1922 are very close, so no slicing procedure was needed to obtain a single index for 1850-2020.

The new and old indices of the Legal System and Property Rights show similar trajectories but with substantial differences (Figure 1). The new index is steadier, and its long run improvement milder, with sustained gains until 1980, but for the Great Depression and World War II, and stagnation during the last three decades. The old index presents, instead, a more intense and volatile improvement until World War I and, again, in the 1950s and from the mid-1970s to the mid-1980s, when it decelerated. Furthermore, in the old index the peak reached in the early 1930s was only reached again forty years later and the contraction between the Great Depression and the end of World War II was much deeper.

In the case of Sound Money the new and old indices match each other with only slight differences in the third quarter of the nineteenth century and in the late 1930s (Figure 2). Thus, after a substantial improvement until 1880, the index remained stable at a high level until 1914. Such level was recovered during 1950-70 and, again, from the mid-1990s onwards, while it contracted during the World Wars and oil shocks of the 1970s.This coincidence is far from surprising as both indices share the same sub-components and there are only minor improvements in the dataset used to construct the new index.

[6] This has been the *EFW* practice since 2002. See Prados de la Escosura (2016) for a discussion of alternative weighting in which the results for the index are hardly altered.

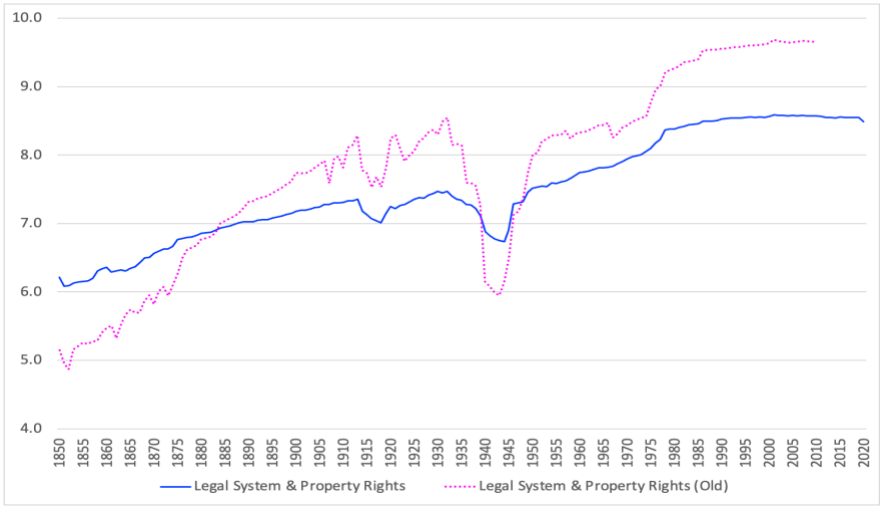

Figure 1 ***OECD Index of Legal System & Property Rights: New and Old***

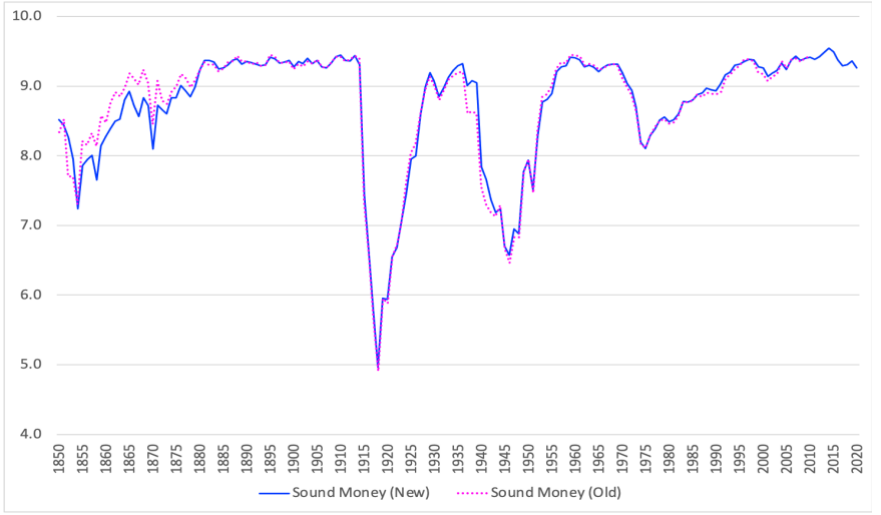

Figure 2. ***OECD Index of Sound Money: New and Old***

Figure 3. ***OECD Index of International Openness: New and Old***

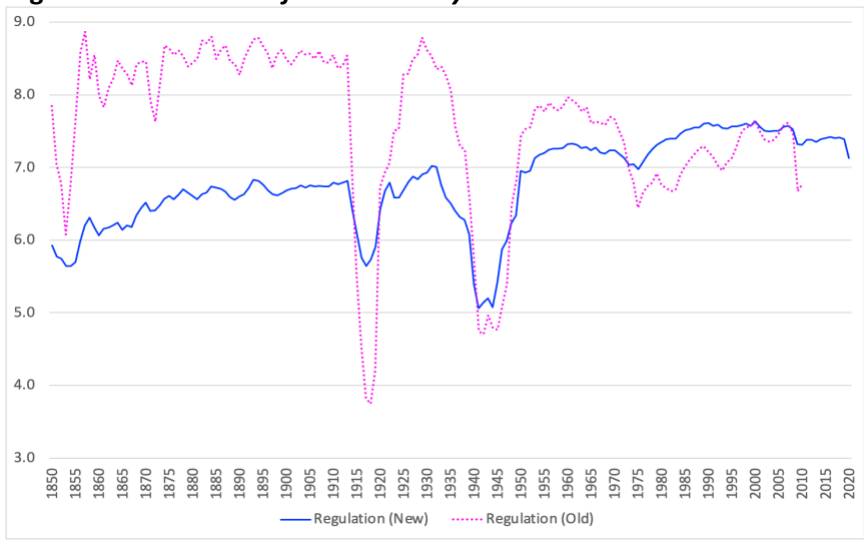

Figure 4. ***OECD Index of Freedom of Regulation: New and Old***

The new and old indices of international openness present similar behaviour, exhibiting a high level up to World War I, then collapsing until the second post-war era, with a partial recovery episode in the late 1920s, and a steep improvement during the second half of the twentieth century, followed by stagnation from 2000 (Figure 3). However, the progress of the new index is more gradual between 1850 and 1913, and changes are much less dramatic during the World Wars and their subsequent recoveries. A significant difference between the two indices is that, according to the new index, the level of 1913 was regained in 1960, while in the old index it was only reached again in 1988.

In the case of freedom from regulation, expanding its coverage of the labour market in the new index has resulted in substantial differences from the old index (Figure 4). Unlike a long run decline, in the new index, we observe a sustained improvement until 1990, only broken by the World Wars and the Great Depression and, to a lesser extent, during the early 1970s.

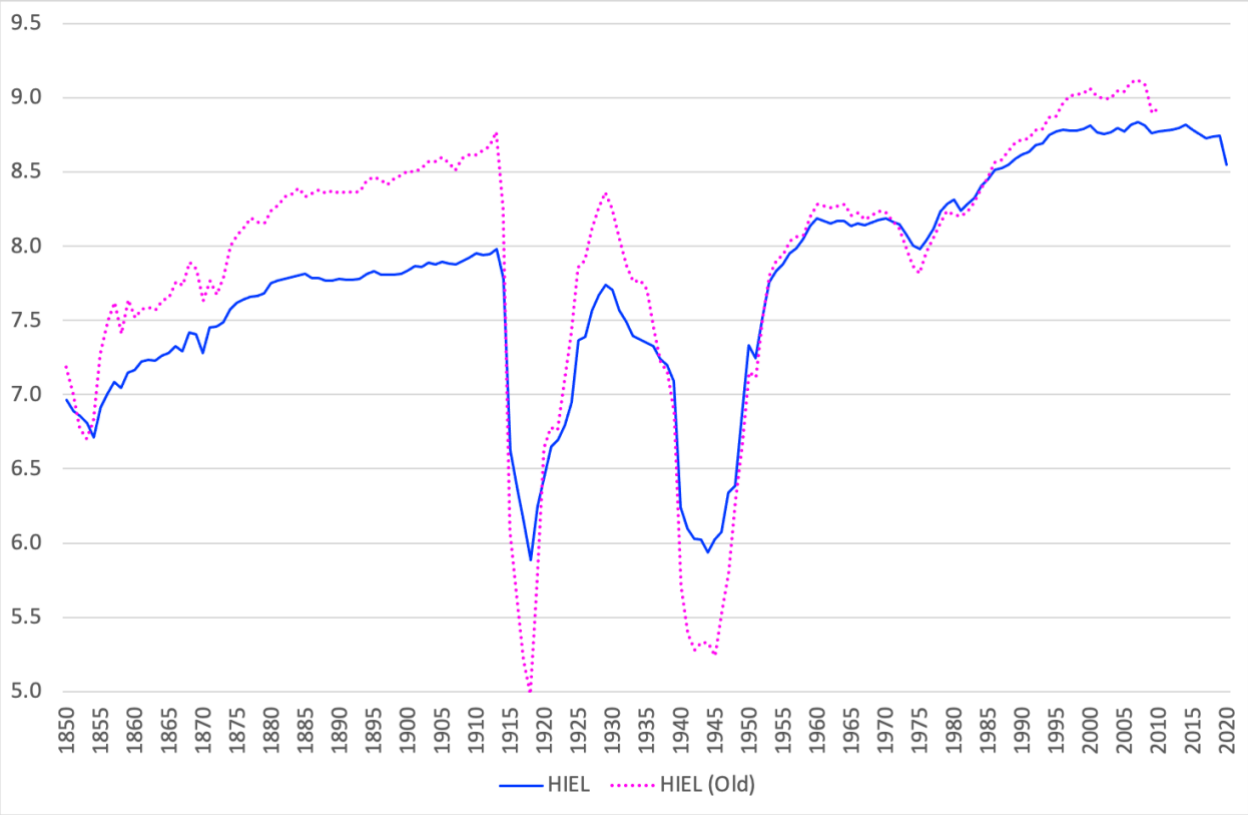

Figure 5. ***OECD Historical Index of Economic Liberty*** ***(unweighted average): New and Old***

The new aggregate index, *HIEL*, confirms a long-run increase in economic freedom until the end of the twentieth century that was, nonetheless, far from steady, with three distinctive phases split up by the World Wars (Figure 5). But beyond these similarities, the two indices present some remarkable differences. For example, in the new *HIEL*, the 1913 peak was reached again in the mid-1950s and economic freedom continued to improve until the end of the twentieth century and stagnated thereafter, while in the old index, the 1913 peak was not surpassed until the early 1990s. Moreover, the intensity of shrinking and recovering phases of economic freedom is much milder in the new index.

A final question is how the new HIEL compares with the Fraser Institute's Economic Freedom of the World (EFW) index, on which it is based. Figure 6 shows that the HIEL follows a similar trajectory to that of the EFW over 1970-2020, but at a higher level, both for the EFW4 (derived from the four dimensions I chose, see Section 2) and for the full EFW5 index (which includes the size of government). Given the significant difference between the number of variables included in HIEL (see Table 1 and Appendix B) and EFW, their similarity is remarkable.

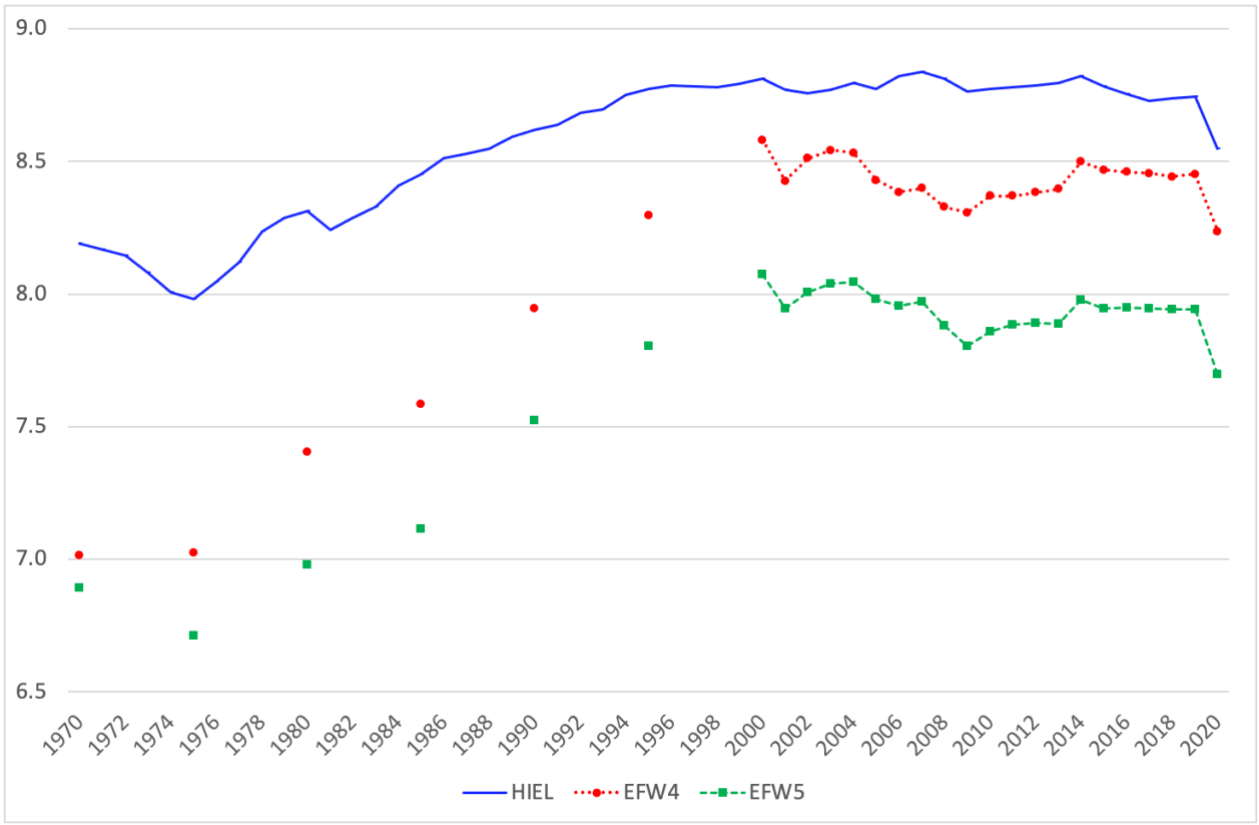

Figure 6. ***HIEL and EFW for the OECD, 1970-2020*** ***(unweighted average)***

5. The New *Historical Index of Economic Liberty* and its Dimensions

When analysing economic freedom in the OECD as a whole, a dilemma arises: whether to use unweighted or population weighted averages. The choice of an unweighted average can be defended on the grounds that national policies shape a country's level of economic freedom, but the use of population weighted-averages bring us closer to the economic freedom of the average individual in the OECD club because, although national averages are arbitrarily taken as representative of the entire population of each country, the more populous nations get larger weights. In the ensuing discussion I will mainly focus on population-weighted averages.

Figures 6 to 9 compare the evolution of unweighted and population-weighted averages for each dimension of economic freedom in OECD countries. They mimic each other's trends, but some discrepancies emerge. In the index of Legal System and Property Rights (Figure 6), the population-weighted level is systematically lower, as also happens in the index of Freedom from Regulation until the early 1960s (Figure 9) and in the index of International Openness from 1890-1913 and 1950-74 (Figure 8). The unweighted and weighted indices of Sound Money present a close match, except for the last two decades of the twentieth century when the latter's level is higher (Figure 7). Regarding aggregate economic freedom (Figure 10), although the differences are milder, the population-weighted index was systematically lower until 1950.

Long run progress in economic freedom was not steady, and the World Wars did break the series in distinct phases (Figure 10), with substantial gains from 1850 to 1913 and again during the second half of the twentieth century, but cut short since 2001, and with a deep contraction in-between, only partially reversed in the late 1920s. Thus, the highest level of economic freedom in 170 years was reached at the turn of the new century.

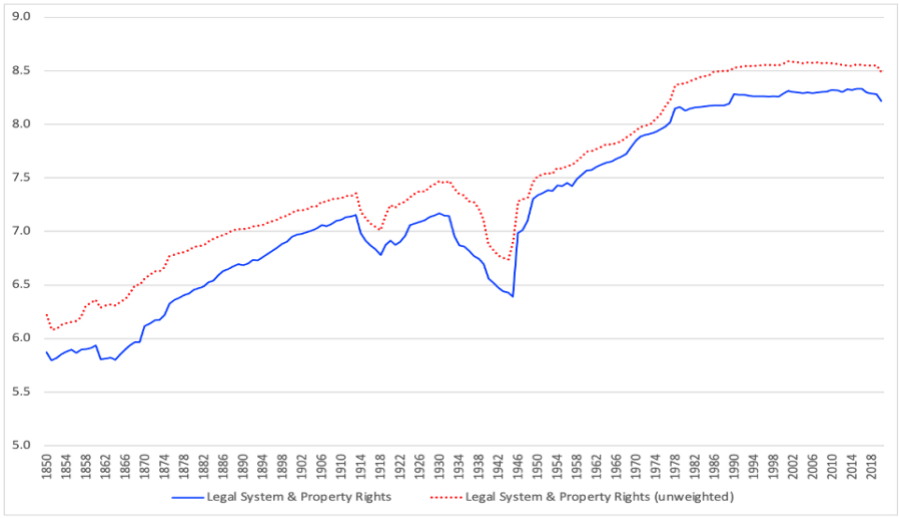

Figure 6. ***Legal System & Property Rights Index: Unweighted and Weighted***

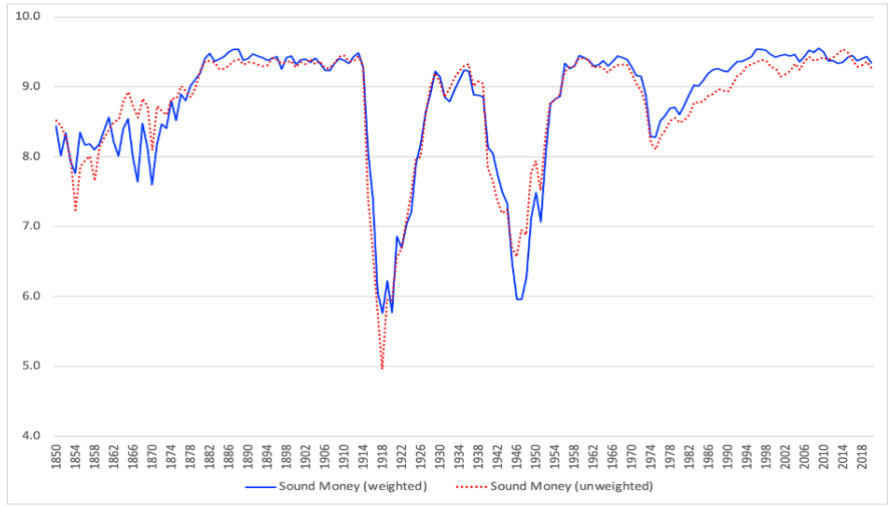

Figure 7. ***Sound Money Index: Unweighted and Weighted***

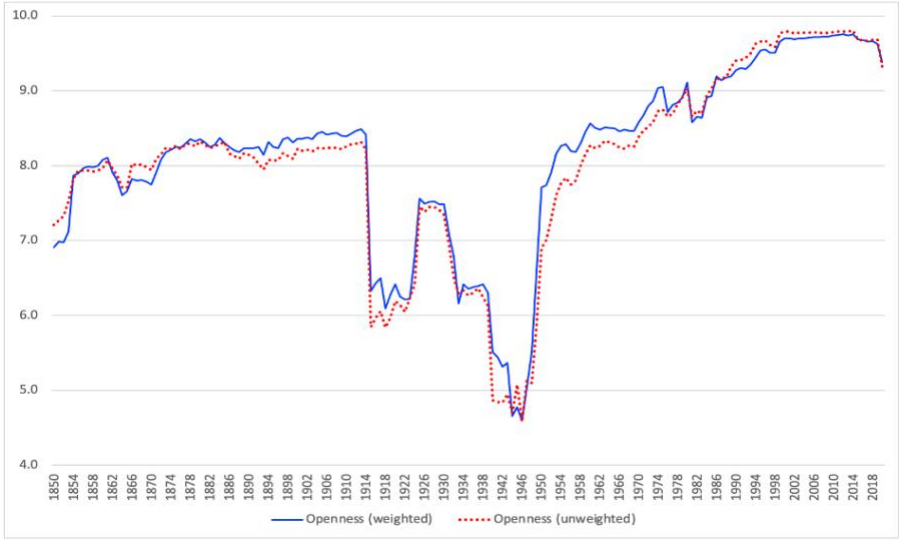

Figure 8. ***International Openness Index: Unweighted and Weighted***

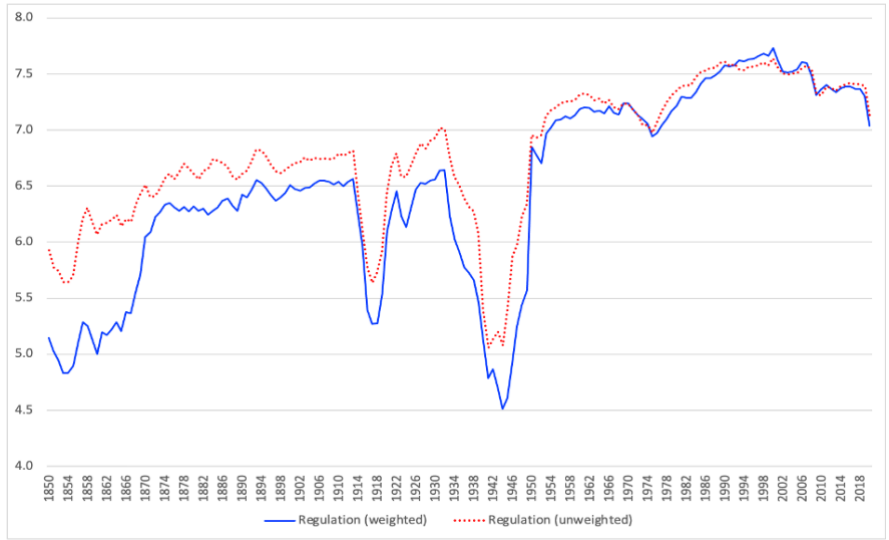

Figure 9. ***Freedom of Regulation Index: Unweighted and Weighted***

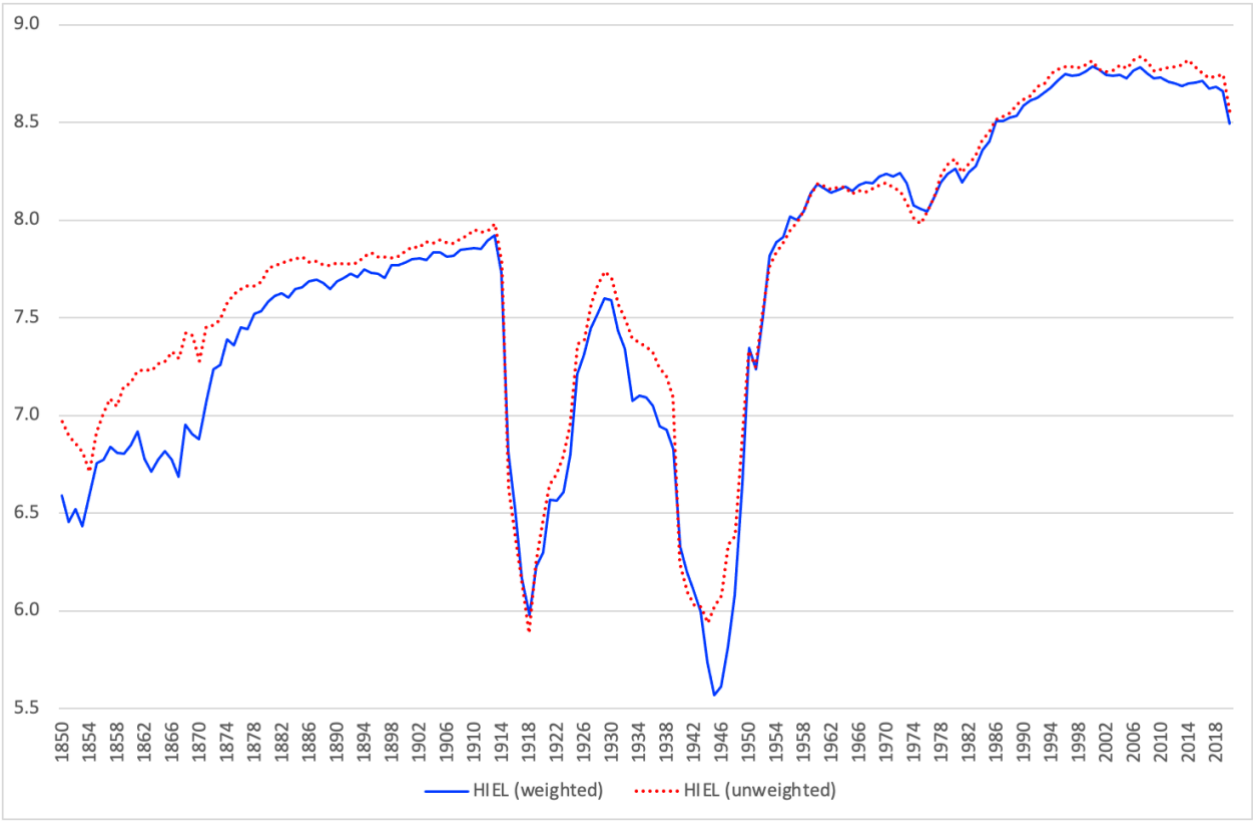

Figure 10. ***Historical Index of Economic Liberty: unweighted and weighted average***

But how much did economic liberty improve in the OECD over the long run? Given the bounded nature of the indices, with 0 and 10 as lower and upper bounds, the use of conventional procedures to summarize achievements -say, the percentage change or the logarithmic rate of growth-, would be misleading since increases at low levels cannot be matched at high levels. It is preferable, therefore, to consider the absolute shortfall of actual economic freedom from the upper bound (a value of 10) at the initial point in time and then compute the shortfall reduction over a given period (Sen, 1981: 292). Thus, the actual gain in economic freedom can be expressed as a proportion of the potential maximum. Let us compute, for example, the shortfall reduction between 1850/54 and 2016/20 for the population-weighted *HIEL*. At the beginning of the period, the absolute shortfall was the maximum potential value (10) less the initial value in 1850/54, that is, 3.48. At the end of the time span considered, the absolute shortfall was 10 less than the value in 2016/20, 1.36. The improvement over time is measured by the reduction in the shortfall between the initial (1850/54) and final (2016/20) years, expressed relative to the initial shortfall (in 1850/54), that is to say, (3.48-1.36)/3.48, so the shortfall dropped by 61.1 per cent from 1850/54-

2016/20 (Table 2, Panel A). If we replicate the exercise for the unweighted HIEL, the shortfall drops by 58.8 per cent (Table. 2, Panel B). Thus, the gains of the new HIEL were smaller than those of the old (72.9 and 70.6 per cent against 64.3 and 62.3 per cent over 1850-2007).

Table 2. ***Drivers of Economic Freedom in the OECD 1850-2020: Shortfall Reduction (%)***

Panel A. Population-weighted

	Legal System & Property Rights	Sound Money	Openness	Regulation	HIEL
1850/54-1880/84	15.7	66.6	40.3	26.3	31.5
1880/84-1909/13	18.1	6.7	7.3	6.6	11.0
1850/54-1909/13	30.9	68.9	44.7	31.2	39.0
1952/56-1969/73	17.6	33.2	27.9	6.7	18.2
1969/73-2016/20	19.5	27.7	69.8	4.1	23.7
1952/56-2016/20	33.6	51.7	78.2	10.5	37.6
1850/54-2016/20	58.7	68.4	85.9	46.3	61.1

Panel B. Unweighted

	Legal System & Property Rights	Sound Money	Openness	Regulation	HIEL
1850/54-1880/84	19.5	64.1	33.0	21.0	29.5
1880/84-1909/13	14.2	14.0	-0.2	4.3	7.6
1850/54-1909/13	30.9	69.2	32.9	24.4	34.9
1952/56-1969/73	16.1	20.2	33.8	0.9	16.5
1969/73-2016/20	28.1	29.3	74.5	6.5	29.8
1952/56-2016/20	39.7	43.6	83.2	7.4	41.3
1850/54-2016/20	62.2	64.5	84.6	37.7	58.8

Sources: See the text

In we focus now on the different phases observed, we find that between 1850/54 and 1909/13 the shortfall reduction amounted to 39 per cent for the *HIEL* population-weighted average (Table 2, Panel A) and to 34.9% for the unweighted average (Table 2, Panel B). A closer look reveals that most of the gain took place up to the early 1880s, with a shortfall reduction of 31.5 per cent from 1850/54-1880/84, in contrast with the milder shortfall contraction, 11.0 per cent, for 1880/84-1909/13 (the contrast is larger for the unweighted average, 29.5 and 7.6 per cent, respectively).

It is worth noting that the results from the shortfall reduction approach are not additive, so percentage shortfall reductions for 1850/54-1880/84 and 1880/84-1909/13 do not add up to that one for 1850/54-1909/13 (Kakwani, 1993). It can be argued, nonetheless, that most of the long run gains in economic freedom by 1913 had been already achieved by the early 1880s.

In the early twentieth century economic freedom experienced a dramatic backlash. The collapse as a result of World War I was partly mitigated by a recovery in the 1920s but was interrupted by the Great Depression, which pushed economic freedom down again. The late 1930s economic recovery did not bring with it a rebound in economic freedom, and World War II brought it to a trough.

The post-1950 era presents a different evolution. Although similar gains to the one for 1850-1913 were achieved, with the shortfall shrinking by 37.6 per cent over 1952/56-2016/20 (41.3 per cent for the unweighted average), economic freedom experienced periods of expansion and contraction. Faster gains took place during the 1950s and between the early 1980s and 1990s, and slower ones in the 1960s, while a contraction occurred in the early 1970s coinciding with the end of the Bretton Woods system and the oil shock, and stagnation and mild decline since 2001. In the *Golden Age* (1952/56-1969/73) the shortfall declined by 18.2 per cent, and during the last three decades of the twentieth century, gains were larger and comparable to those for 1850-80, namely, 30.2 per cent over 1969/73-1998/2002 (34.1 per cent for the unweighted average).

Dimensions of economic freedom have had a distinctive behaviour, and their contribution to the *HIEL* varied over time. Although the lack of additivity of the shortfall reduction approach precludes assessing precisely the dimensions' contributions, it can be pointed out, however, that over the last 170 years, Openness was the main dimension behind economic freedom gains, followed by Sound Money and Property Rights. These results differ from the ones drawn in my earlier investigation in which Property Rights constituted the main force behind long-term gains in economic liberty. If we look now at specific phases, we find that Sound Money, and, then, Openness were the main drivers behind *HIEL* gains over 1850-1913. From 1950 onwards, Openness, mainly, and Sound Money have been the drivers of economic freedom.

6. A Look at Economic Freedom in OECD Countries

But how representative are these results? The aggregate trends analysed so far are the result of combining developments in different countries over a long period of time and may conceal important discrepancies between them.

Table 3. ***Shortfall Reduction in Economic Freedom: OECD Countries (%)***

	1850/54-1880/84	1880/84-1909/13	1850/54-1909/13	1952/56-1969/73	1969/73-2016/20	1952/56-2016/20	1850/54-2016/20
Australia	37.0	4.3	39.7	32.3	12.5	40.7	62.1
New Zealand*	13.7	7.4	20.1	9.5	45.6	50.8	44.6
Canada	16.9	4.0	20.2	23.9	9.6	31.1	59.3
U.S.A.	24.5	10.3	32.3	13.7	8.1	20.6	58.1
Japan	47.7	23.7	60.1	28.4	22.0	44.1	74.2
Austria	33.4	0.2	33.6	36.8	2.9	38.7	51.9
Belgium	22.7	-4.1	19.6	10.5	7.2	16.9	34.4
Denmark	47.4	-13.1	40.5	3.9	33.8	36.4	61.3
Finland	13.5	10.8	22.8	45.5	22.2	57.6	62.3
France	32.1	-0.7	31.7	35.7	16.1	46.0	50.7
Germany	30.6	14.1	40.4	6.0	23.2	27.8	70.7
Greece	6.9	13.1	19.1	-4.6	52.6	50.4	52.4
Ireland				7.9	30.6	36.1	
Italy*	6.0	13.2	18.4	11.7	22.7	31.7	40.0
Netherlands	26.3	5.8	30.6	13.9	9.6	22.1	38.3
Norway	38.8	6.8	43.0	19.6	29.6	43.4	64.6
Portugal	18.2	0.7	18.7	-2.9	46.6	45.1	62.7
Spain	11.2	5.5	16.0	16.2	57.4	64.3	62.3
Sweden	37.1	19.3	49.3	23.6	11.0	32.1	58.8
Switzerland	59.3	-0.4	59.2	-3.5	34.2	31.9	70.3
U.K.	30.8	7.5	36.0	7.4	33.8	38.7	41.0
OECD (w)	31.5	11.0	39.0	18.2	**23.7**	37.6	61.1
OECD (unw)	29.5	7.6	34.9	16.5	29.8	41.3	58.8

Sources: See the text

In fact, the discrepant behaviour of individual countries from the aggregate trends was exceptional (Table 3). The relative shortfall reduction over the entire period under consideration (1850/54-2016/20) was only distinctively above the population-weighted average for the OECD (61.1%) for Germany, Japan, and Switzerland, and below average for Belgium, Italy, Netherlands, New Zealand, and the United Kingdom.

If we now turn to the main phases, it can be observed that during 1850-1913, Japan and Switzerland's gains were well above the average shortfall reduction (39.0%) while the southern European countries achieved less than half. Moreover, only Greece and Italy improved more after 1880 than before. From the 1950s to 2020, New

Zealand, Finland, Greece, and Spain experienced much larger shortfall reduction than the average (37.6%), while in the United States and the Netherlands the gains were significantly lower.

Table 4. ***Unconditional β Convergence***

	β Coefficient	Constant	R^2
Panel A. HIEL			
1850/54-2016/20	6.95	105.21	0.32
1850/54-1909/13	1.97	47.78	0.02
1952/56-2016/20	12.30	133.54	0.57
Panel B. HIEL Dimensions			
1850/54-2016/20			
Legal System & Property Rights	0.07	62.65	0.01
Sound Money	23.46	244.41	0.71
Openness	-4.81	117.40	0.40
Regulation	-13.71	11.99	0.65
1952/56-2016/20			
Legal System & Property Rights	8.79	97.94	0.34
Sound Money	58.95	542.55	0.41
Openness	-8.78	143.99	0.51
Regulation	-17.60	128.80	0.62

Sources: See the text

But are countries' relative shortfall reductions related to their initial levels, so a higher shortfall reduction is associated with a lower initial level or, in other words, do we observe β convergence patterns? Table 4, Panel A, shows a mild β convergence over 1850-2020, but a closer look reveals that it was concentrated in the post-1950 era. If we now descend to the dimensions of economic freedom, no long-run convergence appears to exist in terms of property rights, while appears to be strong for sound money and freedom from regulation. A glance at the post-1950 period, shows that all dimensions exhibit convergence, although it is more intense in the case of regulation.

If we look at the yearly dispersion of the HIEL country series, the so-called σ convergence, we observe long-run σ convergence broken by the reversals during the world wars and their aftermath (Figure 11). It worth noting, however, that σ

convergence is driven by two episodes of dispersion shrinkage around 1870, after the 1866 global financial crisis, and from the late 1970s to the mid-1980s, after the oil shocks and industrial re-structuring.

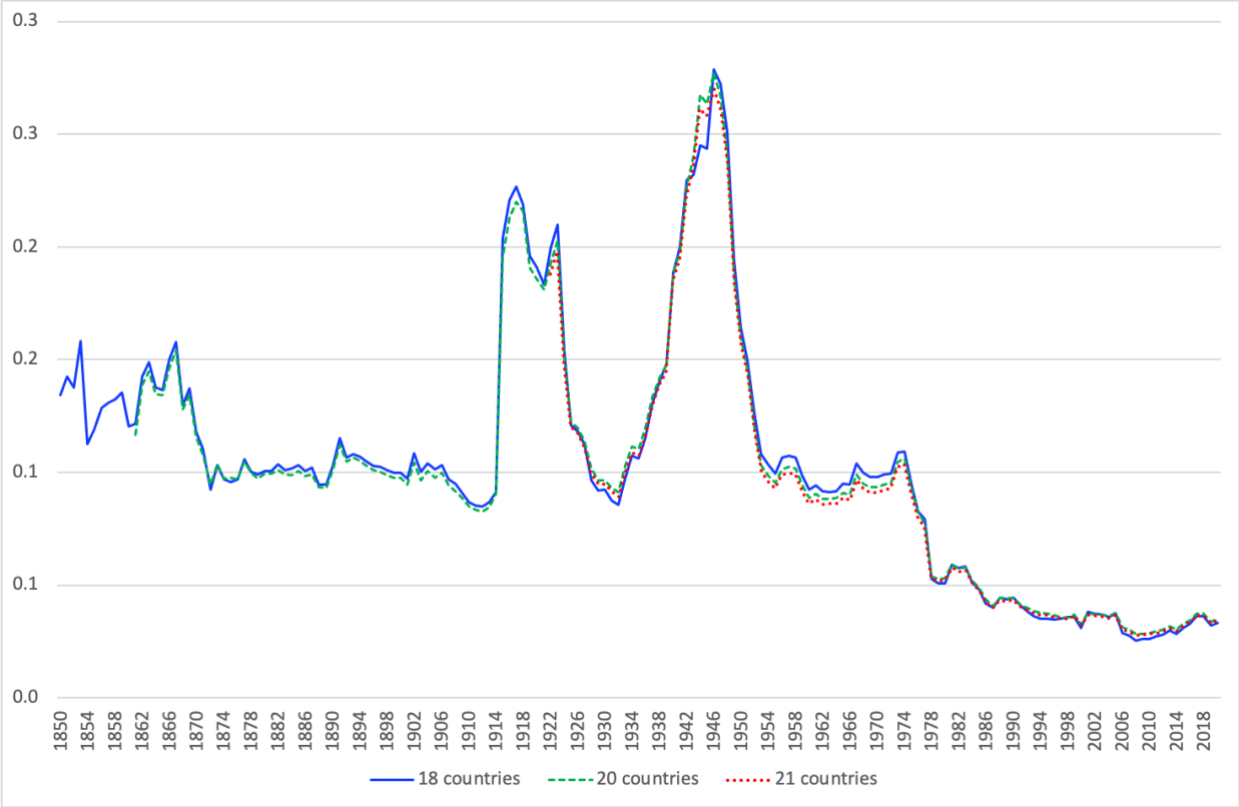

Figure 11. ***σ Convergence in OECD Economic Freedom*: *Alternative Country Samples (unweighted coefficient of variation)***

The results provided by the breakdown of economic freedom gains into the contributions of its dimensions for the OECD club may convey the unsubstantiated perception that it was similar for each particular country.

Table 5 presents dimensions results to test it. Openness emerges as the main driver over time for all countries but Sweden, in which Property Rights made the largest contribution. In the cases of Denmark and New Zealand, Property Rights and also Sound Money in the latter, contributed similarly. In the case of the second major contributor, Sound Money, there is less consensus. In Austria, Italy, Norway, Portugal, Spain, Sweden, and the UK Property Rights provide the second main contribution to economic freedom gains.

Table 5. ***Drivers of Economic Freedom in the OECD Countries, 1850/54-2016/20 Shortfall Reduction (%)***

	Legal System & Property Rights	Sound Money	Openness	Regulation	HIEL
Australia	59.6	71.6	72.8	54.3	62.1
New Zealand*	69.9	69.8	69.3	-19.4	44.6
Canada	65.3	71.4	92.6	17.1	59.3
U.S.A.	53.4	24.7	85.3	51.5	58.1
Japan	65.0	85.4	91.5	62.8	74.2
Austria	63.4	22.8	77.2	28.6	51.9
Belgium	36.8	37.9	63.8	15.9	34.4
Denmark	81.7	59.0	80.2	34.4	61.3
Finland	72.8	64.8	89.7	29.2	62.3
France	53.2	59.7	83.7	27.8	50.7
Germany	64.5	77.9	84.8	68.4	70.7
Greece	40.9	69.1	84.0	35.6	52.4
Ireland					
Italy*	52.9	-8.5	81.5	12.2	40.0
Netherlands	56.5	71.1	65.5	-9.0	38.3
Norway	78.9	41.4	91.1	36.3	64.6
Portugal	71.1	64.3	91.7	11.5	62.7
Spain	69.5	40.8	92.0	37.3	62.3
Sweden	73.5	14.6	77.9	47.1	58.8
Switzerland	79.5	89.6	78.3	38.6	70.3
U.K.	35.6	31.6	71.3	29.5	41.0
OECD (weighted)	58.7	68.4	85.9	46.3	61.1
OECD (unweighted)	62.2	64.5	84.6	37.7	58.8

Note: * starts in 1860/4

Sources: See the text

A closer look reveals that up to World War I (Appendix A, Table A1) Sound Money constituted the leading contributor to economic freedom except for a few cases, namely, those of Austria, Denmark, Italy, Norway, Sweden, and the US, in which Openness and Property Rights made larger contributions. In the phase from 1950 to 2020 (Appendix A, Table A2), Openness was economic freedom's main driver for all countries but the US, in which Property Rights' contribution was slightly larger, and Japan, in which it was Sound Money's.

Country rankings at relevant benchmark years are provided in Table 6. It can be observed that despite β and σ convergence over time, positions have remained rather

stable. Let us look at the top quartile. Denmark has been the country of highest economic freedom at any of the selected benchmarks. Sweden and Switzerland in five of the seven benchmarks, Germany in four, New Zealand, in three, and Belgium, the Netherlands, Norway, the UK, and Canada in two of them. An even higher coincidence of countries is found at the bottom quartile, with Greece and Portugal in all seven benchmarks, Spain in five, Italy and Japan in four, and Austria and Finland in two. The stability of the country ranking and the observed degree of convergence indicate that the distance between countries' levels of economic freedom narrowed down.

Table 6. ***Ranking of Economic Freedom in OECD Countries***

1850/54		1880/84		1909/13		1952/56		1969/73		1998/2002		2016/20	
Denmark	8.08	**Denmark**	8.99	**Denmark**	8.86	**Denmark**	8.83	**Denmark**	8.88	**Denmark**	9.27	**Denmark**	9.26
Belgium	7.89	**Switzerland**	8.76	**Switzerland**	8.76	**Switzerland**	8.67	**Sweden**	8.79	**Germany**	9.07	**Switzerland**	9.10
Netherlands	7.78	**New Zealand**	8.49	**Sweden**	8.67	**Germany**	8.63	**Canada**	8.76	**Switzerland**	9.06	**New Zealand**	9.03
U.K.	7.63	**Belgium**	8.37	**New Zealand**	8.60	**Sweden**	8.41	**Germany**	8.71	**Sweden**	9.05	**Germany**	9.01
Sweden	7.38	**Netherlands**	8.36	**U.K.**	8.48	**Canada**	8.38	**Australia**	8.67	**Norway**	9.02	**Norway**	8.99
Canada	7.26	**U.K.**	8.36	**Netherlands**	8.46	**Belgium**	8.34	**Switzerland**	8.62	**Finland**	8.98	**Sweden**	8.92
Norway	7.14	**Sweden**	8.35	**Norway**	8.37	**U.S.A.**	8.31	**Norway**	8.57	**New Zealand**	8.95	**Canada**	8.88
France	7.05	**Norway**	8.25	**Belgium**	8.31	**Netherlands**	8.24	**U.S.A.**	8.54	**Canada**	8.94	**Australia**	8.83
Switzerland	6.95	**Australia**	8.06	**Australia**	8.15	**Norway**	8.22	**Belgium**	8.51	**Australia**	8.88	**Finland**	8.79
Australia	6.93	**France**	8.00	**Germany**	7.99	**New Zealand**	8.03	**Netherlands**	8.48	**U.S.A.**	8.88	**Ireland**	8.68
U.S.A.	6.79	**Austria**	7.79	**France**	7.98	**Australia**	8.03	**Finland**	8.44	**U.K.**	8.88	**U.S.A.**	8.66
Finland	6.78	**Canada**	7.72	**U.S.A.**	7.83	**Ireland**	7.93	**Austria**	8.36	**Belgium**	8.86	**Netherlands**	8.63
Austria	6.68	**Germany**	7.66	**Canada**	7.81	**U.K.**	7.71	**France**	8.27	**Spain**	8.81	**Belgium**	8.62
Germany	6.62	**U.S.A.**	7.58	**Austria**	7.80	**Italy**	7.42	**New Zealand**	8.22	**France**	8.75	**U.K.**	8.60
Spain	6.22	**Italy**	7.23	**Japan**	7.72	**Austria**	7.40	**Japan**	8.11	**Netherlands**	8.69	**Spain**	8.58
Greece	5.93	**Finland**	7.22	**Italy**	7.60	**Japan**	7.37	**Ireland**	8.09	**Ireland**	8.62	**France**	8.55
Portugal	5.72	**Japan**	7.01	**Finland**	7.52	**France**	7.30	**U.K.**	7.88	**Austria**	8.56	**Japan**	8.53
Japan	4.30	**Spain**	6.65	**Spain**	6.83	**Finland**	7.14	**Italy**	7.72	**Portugal**	8.50	**Portugal**	8.41
		Portugal	6.50	**Greece**	6.70	**Portugal**	7.10	**Portugal**	7.01	**Japan**	8.38	**Austria**	8.40
		Greece	6.21	**Portugal**	6.52	**Greece**	6.09	**Spain**	6.66	**Italy**	8.37	**Italy**	8.24
						Spain	6.01	**Greece**	5.91	**Greece**	7.93	**Greece**	8.06

Sources: See the text

Do the new results support the widespread view that common law institutions tend to be more supportive of economic freedom than civil law institutions? Canada, New Zealand, and the United Kingdom, countries of common law tradition, certainly

achieved higher levels of economic freedom than southern European countries, but not than north-western European ones, Scandinavia in particular.

A glance at countries' ranking by economic freedom dimensions supports this depiction. Denmark (in all seven benchmarks) Sweden and Switzerland (in six) and Australia, New Zealand, and Norway (in four) led the Legal System and Property Rights dimension, contradicting again the superiority of the common law nations in terms of economic freedom (Appendix A, Table 3). At the bottom quartile, Italy and Greece appear in six out of seven benchmarks and Spain, Portugal, and Japan in five.

In the case of Sound Money, the dispersion is larger at the top quartile with the exception of the US, which appears in six out of the seven benchmarks (Appendix A, Table A4). At the bottom, also, the dispersion is lower, and while Greece emerges in six out of seven benchmarks, the following most frequent ones, Australia, Finland, and Japan only do it three times.

Also, north-western European countries dominated the top quartile in terms of International Openness, with Germany in five out of the seven benchmarks and Belgium, the Netherlands, and Switzerland, in four, while Canada only in three (Appendix A, Table A5). Again, southern European countries appear regularly in the lowest quartile. Spain and Portugal, in five out of seven benchmarks, and Greece in four.

Lastly, in terms of Freedom from Regulation, the advantage corresponds again to north-western Europe, specifically, Denmark, present in all seven benchmarks, Sweden and Germany (in four) and Belgium, the Netherlands, and Switzerland (in three each), and only one common law country, New Zealand (in five) (Appendix A, Table A.6). In the bottom quartile, Greece is the most frequent presence, with six out of seven benchmarks, followed by two other Southern European nations, Italy and Spain, and Austria and the United States, with four appearances.

7. Concluding Remarks

This paper offers a new index of economic liberty that results from a comprehensive revision of previous assessments of economic freedom. Long-run gains have been achieved over the last 170 years, amounting to three-fifths of the potential maximum, smaller than in my previous estimates (about three-fourths). Such progress

was far from steady since the World Wars brought with them a drastic contraction that separated a phase of substantial gains from 1850-1913 from another of recovery and improvement, from 1950 onwards, to peak in 2000, and stagnate and decline in the early 21th century.

International Openness has been economic freedom's main driver over time, especially, from 1950 onwards, unlike my earlier estimates in which the main contributors was Property Rights. In the early phase of economic liberty's expansion (1850-1913), Sound Money made the largest contribution.

The behaviour of countries within the OECD Club shows stability in the country ranking and a narrowing in the distance between countries' economic freedom levels.

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Appendix A

Table A1. *Drivers of Economic Freedom in the OECD Countries, 1850/54-1909/13 Shortfall Reduction (%)*

	Legal System & Property Rights	Sound Money	Openness	Regulation	HIEL
Australia	39.1	78.2	-20.6	39.1	39.7
New Zealand*	13.4	72.8	-14.5	9.2	20.1
Canada	36.7	51.9	-6.7	-5.6	20.2
U.S.A.	35.7	21.9	38.1	28.5	32.3
Japan	43.2	75.3	74.1	55.8	60.1
Austria	52.9	35.7	47.9	-0.9	33.6
Belgium	20.9	36.7	45.4	-1.3	19.6
Denmark	70.1	59.8	17.8	22.4	40.5
Finland	21.0	76.6	20.6	-2.8	22.8
France	30.5	50.3	25.0	28.6	31.7
Germany	24.5	77.4	2.5	42.7	40.4
Greece	10.9	81.4	-25.9	9.8	19.1
Ireland					
Italy*	25.6	-12.2	24.6	10.4	18.4
Netherlands	13.6	75.8	49.6	15.2	30.6
Norway	42.8	44.5	59.1	28.4	43.0
Portugal	3.9	81.3	13.1	4.1	18.7
Spain	10.7	66.7	18.8	4.4	16.0
Sweden	61.1	45.7	55.4	38.8	49.3
Switzerland	76.5	84.2	33.3	27.1	59.2
U.K.	20.1	79.2	58.9	21.6	36.0
OECD (weighted)	30.9	68.9	44.7	31.2	39.0
OECD (unweighted)	30.9	69.2	32.9	24.4	34.9

Note: * starts in 1860/4
Sources: See the text

Table A2. ***Drivers of Economic Freedom in the OECD Countries, 1952/56-2016/20 Shortfall Reduction (%)***

	Legal System & Property Rights	Sound Money	Openness	Regulation	HIEL
Australia	20.0	56.6	81.1	-7.4	40.7
New Zealand*	68.2	35.9	85.8	-9.8	50.8
Canada	38.6	11.2	80.3	16.7	31.1
U.S.A.	26.8	-15.3	24.1	20.8	20.6
Japan	18.2	81.6	77.6	8.1	44.1
Austria	27.1	48.0	75.3	14.9	38.7
Belgium	40.5	-15.0	52.5	-27.0	16.9
Denmark	56.4	17.4	70.2	15.4	36.4
Finland	25.4	68.1	95.2	-18.6	57.6
France	45.6	61.8	88.6	-12.0	46.0
Germany	25.8	59.2	79.7	-36.2	27.8
Greece	41.0	43.6	89.6	26.6	50.4
Ireland	5.7	5.7	87.8	13.1	36.1
Italy*	29.7	43.8	82.0	7.8	31.7
Netherlands	36.1	51.8	54.8	-7.2	22.1
Norway	51.0	40.3	85.9	4.5	43.4
Portugal	64.3	-207.1	87.3	3.3	45.1
Spain	64.0	45.1	94.2	41.1	64.3
Sweden	37.0	52.4	70.6	-17.6	32.1
Switzerland	36.6	6.1	68.5	20.3	31.9
U.K.	17.4	18.5	81.6	10.2	38.7
OECD (weighted)	33.6	51.7	78.2	10.5	37.6
OECD (unweighted)	39.7	43.6	83.2	7.4	41.3

Note: * starts in 1860/4
Sources: See the text

Table A3. *Ranking of Economic Freedom in Legal System & Property Rights*

1850/54		1880/84		1909/13		1952/56		1969/73		1998/2002		2016/20	
Denmark	8.03	**Denmark**	9.25	**Denmark**	9.41	**Denmark**	9.17	**Denmark**	9.49	**Denmark**	9.66	**Denmark**	9.64
Australia	7.57	**Switzerland**	8.79	**Switzerland**	9.13	**Switzerland**	8.80	**Switzerland**	9.01	**New Zealand**	9.40	**New Zealand**	9.40
Belgium	7.37	**Sweden**	8.52	**Sweden**	8.82	**Australia**	8.77	**Sweden**	8.94	**Norway**	9.25	**Norway**	9.35
U.K.	7.23	**Australia**	8.34	**Australia**	8.52	**Sweden**	8.73	**Norway**	8.94	**Switzerland**	9.23	**Switzerland**	9.24
Netherlands	7.05	**New Zealand**	8.16	**New Zealand**	8.27	**Norway**	8.67	**Australia**	8.88	**Sweden**	8.98	**Sweden**	9.20
Sweden	6.97	**Norway**	8.03	**Norway**	8.24	**Ireland**	8.43	**Germany**	8.71	**Australia**	8.97	**Australia**	9.02
Norway	6.92	**Belgium**	7.65	**Belgium**	7.92	**Finland**	8.28	**New Zealand**	8.69	**Germany**	8.88	**Finland**	8.72
U.S.A.	6.42	**U.K.**	7.54	**U.K.**	7.79	**Germany**	8.26	**Canada**	8.60	**Finland**	8.73	**Netherlands**	8.72
Germany	6.38	**U.S.A.**	7.22	**U.S.A.**	7.70	**New Zealand**	8.11	**Finland**	8.48	**Canada**	8.73	**Germany**	8.71
Switzerland	6.28	**Canada**	7.20	**Canada**	7.64	**Netherlands**	7.99	**Netherlands**	8.46	**Netherlands**	8.69	**Canada**	8.70
Canada	6.26	**Netherlands**	7.15	**Austria**	7.57	**Canada**	7.89	**Ireland**	8.42	**Ireland**	8.61	**Ireland**	8.51
France	6.00	**Austria**	7.12	**Netherlands**	7.45	**U.K.**	7.84	**U.S.A.**	8.13	**Spain**	8.46	**Belgium**	8.34
Finland	5.28	**Germany**	6.87	**Germany**	7.26	**U.S.A.**	7.72	**Austria**	8.00	**Belgium**	8.41	**U.S.A.**	8.33
Greece	4.98	**France**	6.83	**France**	7.22	**Austria**	7.41	**U.K.**	7.91	**U.K.**	8.37	**Portugal**	8.32
Austria	4.85	**Finland**	5.28	**Japan**	6.53	**Japan**	7.39	**Belgium**	7.79	**Portugal**	8.31	**Spain**	8.26
Spain	4.30	**Italy**	5.14	**Finland**	6.27	**Belgium**	7.21	**Japan**	7.74	**France**	8.29	**U.K.**	8.22
Portugal	4.16	**Japan**	5.02	**Italy**	5.98	**France**	6.56	**France**	7.67	**Austria**	8.24	**France**	8.13
Japan	3.89	**Greece**	4.95	**Greece**	5.53	**Italy**	6.39	**Italy**	7.02	**U.S.A.**	8.23	**Austria**	8.12
		Spain	4.40	**Spain**	4.91	**Portugal**	5.28	**Portugal**	5.67	**Japan**	7.88	**Japan**	7.86
		Portugal	4.23	**Portugal**	4.39	**Spain**	5.17	**Spain**	5.45	**Italy**	7.41	**Italy**	7.46
						Greece	4.97	**Greece**	5.26	**Greece**	7.20	**Greece**	7.03

Sources: See the text

Table A4. *Ranking of Economic Freedom in Sound Money*

1850/54		1880/84		1909/13		1952/56		1969/73		1998/2002		2016/20	
U.S.A.	9.30	**Spain**	9.65	**U.K.**	9.78	**Portugal**	9.69	**U.S.A.**	9.49	**Italy**	9.65	**Switzerland**	9.64
Sweden	9.22	**France**	9.63	**Netherlands**	9.62	**Switzerland**	9.61	**Belgium**	9.44	**U.S.A.**	9.61	**Netherlands**	9.55
U.K.	8.94	**Austria**	9.60	**Sweden**	9.57	**U.S.A.**	9.54	**Australia**	9.34	**Sweden**	9.58	**New Zealand**	9.52
Norway	8.89	**U.K.**	9.60	**New Zealand**	9.57	**Belgium**	9.39	**France**	9.33	**France**	9.58	**Japan**	9.51
Belgium	8.86	**U.S.A.**	9.58	**Finland**	9.53	**Denmark**	9.31	**Canada**	9.25	**Switzerland**	9.57	**U.S.A.**	9.47
Austria	8.82	**Australia**	9.49	**Spain**	9.52	**Canada**	9.29	**Austria**	9.21	**Germany**	9.51	**Germany**	9.44
Denmark	8.61	**Germany**	9.46	**Portugal**	9.50	**New Zealand**	9.25	**Germany**	9.18	**U.K.**	9.50	**Denmark**	9.43
Spain	8.56	**New Zealand**	9.45	**U.S.A.**	9.46	**U.K.**	9.11	**U.K.**	9.13	**Finland**	9.46	**Italy**	9.41
Netherlands	8.44	**Belgium**	9.43	**Switzerland**	9.45	**Netherlands**	9.07	**Switzerland**	9.11	**Belgium**	9.43	**Canada**	9.37
France	8.33	**Netherlands**	9.42	**Denmark**	9.44	**Ireland**	9.03	**Sweden**	9.10	**Denmark**	9.42	**Norway**	9.35
Finland	7.99	**Italy**	9.39	**Germany**	9.43	**Italy**	8.95	**Netherlands**	9.06	**Japan**	9.36	**Sweden**	9.33
Canada	7.78	**Switzerland**	9.37	**Italy**	9.39	**Norway**	8.91	**Portugal**	9.05	**Spain**	9.34	**France**	9.33
Germany	7.48	**Portugal**	9.35	**Norway**	9.39	**Germany**	8.63	**New Zealand**	8.87	**Canada**	9.29	**Belgium**	9.29
Portugal	7.31	**Norway**	9.31	**Australia**	9.37	**Sweden**	8.59	**Spain**	8.86	**Netherlands**	9.20	**Finland**	9.29
Australia	7.11	**Sweden**	9.31	**Greece**	9.37	**Spain**	8.45	**Japan**	8.85	**Australia**	9.16	**U.K.**	9.28
Japan	6.63	**Denmark**	9.25	**Belgium**	9.28	**Austria**	8.24	**Italy**	8.81	**Austria**	9.05	**Australia**	9.18
Greece	6.60	**Canada**	9.04	**Austria**	9.24	**France**	8.24	**Ireland**	8.80	**New Zealand**	9.03	**Spain**	9.15
Switzerland	6.53	**Finland**	8.84	**France**	9.17	**Greece**	8.13	**Norway**	8.80	**Norway**	8.92	**Austria**	9.09
		Greece	8.66	**Japan**	9.17	**Australia**	8.11	**Denmark**	8.78	**Portugal**	8.88	**Ireland**	9.08
		Japan	8.42	**Canada**	8.93	**Finland**	7.78	**Finland**	8.68	**Ireland**	8.72	**Portugal**	9.04
						Japan	7.31	**Greece**	8.64	**Greece**	7.96	**Greece**	8.95

Sources: See the text

Table A5. *Ranking of Economic Freedom in Openness*

1850/54		1880/84		1909/13		1952/56		1969/73		1998/2002		2016/20	
Germany	8.69	**Denmark**	9.68	**Netherlands**	9.31	**U.S.A.**	9.44	**Canada**	9.45	**Germany**	9.92	**Canada**	9.84
Netherlands	8.63	**Netherlands**	9.33	**Belgium**	9.13	**Canada**	9.19	**Netherlands**	9.44	**Finland**	9.92	**Germany**	9.80
Switzerland	8.56	**Switzerland**	9.24	**U.K.**	9.12	**Germany**	9.02	**U.S.A.**	9.35	**Italy**	9.91	**Finland**	9.75
Belgium	8.41	**Germany**	9.19	**Switzerland**	9.04	**Switzerland**	9.01	**Belgium**	9.17	**Greece**	9.89	**Spain**	9.72
Denmark	8.28	**Belgium**	9.18	**Sweden**	9.01	**Netherlands**	8.95	**Sweden**	9.17	**Norway**	9.89	**Norway**	9.70
Australia	8.24	**U.K.**	9.09	**Germany**	8.73	**Denmark**	8.86	**Switzerland**	9.10	**Belgium**	9.86	**Switzerland**	9.69
France	7.93	**Sweden**	8.82	**Italy**	8.71	**Belgium**	8.79	**Italy**	9.01	**Spain**	9.85	**Italy**	9.68
U.K.	7.86	**France**	8.66	**Norway**	8.60	**Sweden**	8.33	**Finland**	8.97	**Canada**	9.83	**France**	9.66
Canada	7.85	**Norway**	8.61	**Denmark**	8.59	**Italy**	8.24	**Denmark**	8.95	**France**	9.82	**Denmark**	9.66
Sweden	7.79	**Finland**	8.55	**Austria**	8.53	**Norway**	7.83	**Norway**	8.95	**Sweden**	9.79	**Ireland**	9.66
Finland	7.55	**Austria**	8.51	**Japan**	8.47	**Japan**	7.76	**Germany**	8.91	**Portugal**	9.79	**Portugal**	9.60
Greece	7.24	**Japan**	8.43	**France**	8.45	**Australia**	7.47	**Austria**	8.90	**Netherlands**	9.78	**U.S.A.**	9.58
Austria	7.18	**New Zealand**	8.01	**New Zealand**	8.37	**Austria**	7.39	**France**	8.59	**Denmark**	9.78	**New Zealand**	9.56
U.S.A.	7.14	**Australia**	7.98	**U.S.A.**	8.23	**Ireland**	7.19	**Japan**	8.54	**Switzerland**	9.77	**Greece**	9.56
Norway	6.58	**Italy**	7.97	**Finland**	8.06	**France**	7.04	**Australia**	8.41	**Ireland**	9.72	**Netherlands**	9.53
Spain	6.55	**Canada**	7.83	**Australia**	7.88	**New Zealand**	6.91	**Ireland**	8.11	**U.K.**	9.71	**Australia**	9.52
Portugal	5.19	**U.S.A.**	7.46	**Canada**	7.71	**Portugal**	6.86	**New Zealand**	7.48	**Austria**	9.67	**Sweden**	9.51
Japan	4.07	**Spain**	6.86	**Spain**	7.20	**U.K.**	6.67	**Portugal**	7.37	**U.S.A.**	9.67	**Japan**	9.50
		Greece	6.28	**Greece**	6.53	**Greece**	5.75	**U.K.**	7.02	**New Zealand**	9.53	**Belgium**	9.43
		Portugal	5.85	**Portugal**	5.82	**Spain**	5.22	**Spain**	6.94	**Australia**	9.36	**U.K.**	9.39
						Finland	4.70	**Greece**	5.49	**Japan**	9.04	**Austria**	9.35

Sources: See the text

Table A6. *Ranking of Economic Freedom in Regulation*

1850/54		1880/84		1909/13		1952/56		1969/73		1998/2002		2016/20	
Denmark	7.42	**New Zealand**	8.36	**New Zealand**	8.21	**Germany**	8.59	**Denmark**	8.30	**Denmark**	8.21	**Denmark**	8.31
Canada	7.13	**Denmark**	7.78	**Denmark**	8.00	**Denmark**	8.00	**Germany**	8.04	**Australia**	8.04	**Germany**	8.08
Netherlands	6.99	**Switzerland**	7.65	**Netherlands**	7.45	**Sweden**	8.00	**Australia**	8.03	**Norway**	8.02	**Switzerland**	7.82
Belgium	6.93	**Netherlands**	7.55	**Switzerland**	7.41	**Belgium**	7.97	**Sweden**	7.94	**U.S.A.**	8.01	**Sweden**	7.65
U.K.	6.48	**Belgium**	7.23	**Sweden**	7.28	**New Zealand**	7.86	**New Zealand**	7.85	**Germany**	7.96	**New Zealand**	7.65
Switzerland	6.44	**U.K.**	7.20	**Norway**	7.26	**Finland**	7.80	**Canada**	7.75	**U.K.**	7.93	**Canada**	7.62
Finland	6.31	**Norway**	7.05	**U.K.**	7.24	**Australia**	7.78	**Belgium**	7.65	**Canada**	7.92	**Australia**	7.61
Portugal	6.24	**France**	6.85	**France**	7.10	**Norway**	7.45	**Finland**	7.63	**New Zealand**	7.86	**Norway**	7.56
Norway	6.18	**Canada**	6.80	**Canada**	6.97	**France**	7.38	**Norway**	7.59	**Sweden**	7.83	**U.K.**	7.52
France	5.94	**Sweden**	6.77	**Belgium**	6.89	**Switzerland**	7.26	**U.K.**	7.47	**Finland**	7.80	**Ireland**	7.45
Austria	5.88	**Portugal**	6.57	**Australia**	6.82	**U.K.**	7.23	**France**	7.47	**Belgium**	7.74	**Belgium**	7.42
Sweden	5.55	**Australia**	6.45	**Japan**	6.73	**Canada**	7.14	**Japan**	7.32	**Switzerland**	7.68	**Finland**	7.39
Spain	5.49	**Italy**	6.44	**Germany**	6.52	**Ireland**	7.07	**Austria**	7.31	**Spain**	7.58	**Japan**	7.25
Greece	4.89	**Finland**	6.20	**Portugal**	6.39	**Japan**	7.00	**Switzerland**	7.27	**Ireland**	7.42	**U.S.A.**	7.24
Australia	4.78	**Japan**	6.18	**Italy**	6.32	**Netherlands**	6.94	**U.S.A.**	7.18	**France**	7.30	**Spain**	7.17
U.S.A.	4.32	**U.S.A.**	6.07	**Finland**	6.21	**Portugal**	6.56	**Ireland**	7.05	**Austria**	7.29	**France**	7.07
Germany	3.94	**Austria**	5.93	**U.S.A.**	5.94	**Austria**	6.54	**Netherlands**	6.97	**Japan**	7.22	**Austria**	7.06
Japan	2.59	**Spain**	5.67	**Austria**	5.84	**U.S.A.**	6.52	**Italy**	6.04	**Netherlands**	7.07	**Netherlands**	6.72
		Germany	5.10	**Spain**	5.69	**Italy**	6.09	**Portugal**	5.96	**Portugal**	7.04	**Greece**	6.71
		Greece	4.94	**Greece**	5.39	**Greece**	5.52	**Spain**	5.37	**Greece**	6.66	**Portugal**	6.67
						Spain	5.20	**Greece**	4.26	**Italy**	6.51	**Italy**	6.40

Sources: See the text

Appendix B. 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).

<u>Area 2 Legal System and Property Rights</u>

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* (v2juaccnt)
- *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

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; Hjerppe (1996), 1913-50; IMF, 1950-2000; OECD 2000 onwards. GDP deflator, derived from nominal GDP Hjerppe (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; DeStatis 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, 2000-20. Real GDP, Baffigi (2013), 1861-2000; Conference Board, 2000-20
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).

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 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).

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 discretional.

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 Todoya (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.

- <u>*Labour*</u>

Freedom of Foreign Movement, an 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.

<u>Area 5 Regulation</u>

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 $I_{ij} = 10*(V_{IJ} – V_{MIN}) /(V_{MAX}- V_{MIN})$, 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 -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_dmove). 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 $I_{ij} = 10*(V_{IJ} - V_{MIN}) / (V_{MAX} - V_{MIN})$, where V_{ij} represents the value of country *i* indicator at year *j* and V_{MAX} and V_{MIN}, its maximum and minimum values.
- *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).

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