

FUNDACIÓN
RAFAEL DEL PINO



15 de febrero de 2023

IDHA-23

Índice de Desarrollo Humano Aumentado

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 de Desarrollo Humano Aumentado¹

El bienestar humano es ampliamente percibido como un fenómeno multidimensional del que el ingreso por habitante es sólo una faceta más. El desarrollo humano, definido como un proceso de ampliación de las opciones de los individuos, incluye el disfrute de una vida larga y saludable, el acceso al conocimiento y el logro de un nivel de vida aceptable, y proporciona, por tanto, una medida multidimensional de bienestar.

Estos logros proporcionan a las personas libertad de elegir y, así, la oportunidad de decidir sobre su propia existencia. El desarrollo humano puede entenderse, así, como una medida de libertad positiva que posibilita a los individuos el acceso a recursos, incluida la propiedad, que les ayudan a desarrollar su potencial personal.

Dimensiones del desarrollo humano aumentado

A fin de proporcionar una medida sintética de desarrollo humano, sus diferentes dimensiones se expresan en forma de índices:

- longevidad (esperanza de vida al nacer) como una aproximación a una vida saludable,
- años de escolarización como indicador de acceso al conocimiento
- un índice de democracia liberal como indicador de libertad
- y el valor descontado del PIB por habitante como un sucedáneo de dimensiones del bienestar no directamente relacionadas con la educación y la salud.

La longevidad, como medida de salud, está representada por la esperanza de vida al nacer, definida como el promedio de años de vida que disfrutarían hombres y mujeres si continuasen sujetos a la misma mortalidad experimentada en el año de su nacimiento.

Como medidas del nivel educativo se utilizan los años de escolarización (primaria, secundaria y terciaria) recibida por la población de 15 o más años.

El PIB por habitante se expresa en dólares de 1990 ajustados por la paridad del poder adquisitivo (es decir, por las diferencias de nivel de precios entre países) –los denominados dólares Geary-Khamis [G-K] de 1990–.

Las variables sociales (longevidad y educación) tienen límites superior e inferior (a diferencia del PIB por habitante que no tiene límite superior conocido) y, por tanto, deben transformarse de forma no lineal, a fin de tener en cuenta que aumentos del mismo tamaño absoluto representan mayores logros cuanto más elevado sea el nivel al que se alcanzan, y que la mejoras de calidad están asociadas a aumentos de cantidad. Así,

$$I = f(x, Mo, M) = (\log(M - Mo) - \log(M - x)) / \log(M - Mo),$$

En la que I es el índice de la dimensión considerada, x es un indicador del nivel de bienestar del país, M y Mo son los valores máximo y mínimo, respectivamente, que permiten comparaciones en el tiempo, en tanto $\log$ representa al logaritmo natural. El índice de cada dimensión varía entre 0 y 1.

En el caso del índice de democracia liberal, como considera tanto cambios cuantitativos como cualitativos, la transformación es lineal.

$$I = (x - Mo) / (M - Mo)$$

1. El Índice de Desarrollo Humano Aumentado (IDHA) se inspira y adapta desde una perspectiva a largo plazo el Índice de Desarrollo Humano (HDI) del Programa de las Naciones Unidas para el Desarrollo (UNDP, 2022). Una explicación detallada del concepto y procedimientos de cálculo, así como un análisis de los resultados se puede consultar en Prados de la Escosura (2021).

En cuanto al PIB por habitante, dado que este indicador trata de ser una aproximación a dimensiones del bienestar excluyendo la educación y el bienestar, se realiza su transformación logarítmica. La transformación logarítmica supone que los rendimientos del ingreso por persona en términos de desarrollo humano se reducen a medida que se alcanzan valores más altos/elevados. Dado que el PIB per capita no tiene un límite superior conocido, sin esta transformación dominaría el índice de desarrollo humano, haciéndolo superfluo. A fin de obtener el índice de PIB por habitante se ha utilizado la anterior expresión, en la que x , M , y M_0 están expresados en logaritmos.

Se han establecido límites superiores e inferiores para las diferentes dimensiones del desarrollo humano. Así, para la esperanza de vida al nacer los valores máximo y mínimo son 85 y 20 años, respectivamente. En el caso de los años de escolarización, los valores máximo y mínimo son 15 y 0, respectivamente. Finalmente, los valores máximo y mínimo del PIB por habitante, expresados en dólares Geary-Khamis de 1990, son 47.000 y 100, respectivamente.

El índice de desarrollo humano aumentado

Los índices de cada dimensión se han combinado posteriormente, con ponderaciones iguales, en un índice de desarrollo humano.

En un intento de reducir la capacidad de sustitución entre las distintas dimensiones –es decir, evitar que el logro de un nivel alto en una dimensión compense un nivel bajo en otra–, los índices de las distintas dimensiones se ha empleado una media geométrica para constituir el índice histórico de desarrollo humano.

Si expresamos los valores transformados no-linealmente de la esperanza de vida y la educación como LEB y EDU , LD para representar los de democracia liberal, y el valor ajustado del PIB por habitante como UNY , el índice histórico de desarrollo humano puede expresarse como:

$$AHDH = LEB^{1/4} EDU^{1/4} LD^{1/4} UNY^{1/4}$$

Cobertura espacial y temporal

En cuanto a la dimensión temporal, la fecha inicial, 1870, ha sido elegida porque señala el inicio de los grandes avances en la salud, asociados a la difusión de la teoría de los microorganismos como causa de la enfermedad a partir de 1880, y de la educación primaria a gran escala en Europa occidental y los países de origen europeo. Es también a fines del siglo XIX cuando junto a los avances en el conocimiento médico, se inició la expansión del gasto social en las regiones más desarrolladas.

A lo largo del periodo 1870-2020 se consideran 115 países, cuyo número asciende a 121, 146, 161 y 162 cuando las muestras de países abarcan periodos entre 1913, 1950, 1980 y 1990, respectivamente, y 2020. Dichas muestras de países representan más del 90% de la población mundial (y prácticamente el 100% a partir de 1950).

Referencias bibliográficas

Prados de la Escosura, L. (2021), “Augmented Human Development in the Age of Globalisation”, *Economic History Review* 74(4): 946-975.

Prados de la Escosura, L. (2022), *Human Development and the Path to Freedom. From 1870 to the Present*, Cambridge: Cambridge University Press.

United Nations Development Programme (UNDP) (2022), *Human Development Report 2021/2022*, New York: United Nations Development Programme.

Alerta: ¿Cómo se miden los cambios en los índices?

¿Cuánto ha mejorado el nivel de desarrollo humano a lo largo del tiempo? Dado el modo en que se ha construido el índice, es posible emplear tasas de variación logarítmicas como suelen emplearse en el caso del PIB por habitante.

FUENTES Y PROCEDIMIENTOS

Life Expectancy at birth

Life expectancy is defined as “the average number of years of life which would remain for males and females reaching the ages specified if they continued to be subjected to the same mortality experienced in the year(s) to which these life expectancies refer” (United Nations, 2000). Most data for the period 1980-2020 come from the Human Development Reports (UNDP, 2010, 2016, 2021-22) while the World Bank (World Development Indicators) provides data for 1960-1975 (exceptionally completed with data from UNESCO) and the United Nations’ Demographic Yearbook Historical Supplement (United Nations, 2000) for the 1950s. Pre-1950 estimates come mostly from Riley (2005b), Flora (1983), and the OxLAD database for Latin America (Astorga et al., 2003), completed with the national sources listed below. Nonetheless, for Most OECD countries (namely, Europe, the European Offshoots –Australia, Canada, New Zealand–, plus Israel, Japan, Korea, and Taiwan), the Human Mortality Dataset <https://www.mortality.org/> (HMD hereafter) has been preferred, completed with the Clio-Infra Dataset <https://www.clio-infra.eu/>.

Occasionally, dearth of data has forced me to introduce some assumptions for the period before the epidemiological or health transition that, in developing regions, particularly those of South Asia and Sub-Saharan Africa, often started during the Interwar years (Omran, 1971; Riley 2005b, 2005c). In particular, I have accepted Riley’s (2005a, p. 539) assumption that “the average of all life expectancy estimates of acceptable quality for countries in a region provides the best available gauge of the pretransition average for the entire region”.

Maximum and the minimum values for the life expectancy index were established at 85 and 20 years, respectively. A “floor” of 25 years has been accepted as the minimum historical value for life expectancy at birth. Such a “floor” precludes a zero value for the transformed life expectancy index and, consequently, for the AHDI.

Africa

North. Algeria, 1913-1925, and 1938, Clio-Infra. 1900-1929, inferred from the infant survival rate (ISR, that is, 400 –as the maximum infant mortality rate per thousand– less the country’s infant mortality rate (Prados de la Escosura, 2013). Egypt, 1929-1938, from Fargues (1986); 1913, assumed to be as Tunisia’s; and 1900, as Algeria’s. Libya, 1900-1938, assumed to be identical to Egypt’s. Morocco, 1900-1938, assumed to be as Algeria’s, except 1913, as Tunisia’s. Tunisia, 1900, 1929, assumed to be the same as Algeria. 1913, 1925, Conté (1973), cited in Riley (2005); 1930s, Clio-Infra.

Central. Estimates for CAR, Chad, Congo, Congo D.R., and Gabon over 1870-1929, and for Cameroon (1870-1913) inferred from heights (Prados de la Escosura, 2013).

West. Figures for 1938 are backwards projected with estimates inferred from heights and infant survival rates (ISR) (Prados de la Escosura, 2013), for Benin, Burkina Faso, Côte d’Ivoire, Gambia, Ghana (but for 1913), Guinea, Guinea-Bissau, Liberia, Mali, Nigeria (but for 1929, from Ayeni 1976), Senegal (but for 1929), and Sierra Leone (but for 1929). Mauritania’s and Niger’s assumed to identical to Mali’s. Togo’s assumed to be as Benin’s, but Benin in 1913, as Ghana’s.

East. Data for 1938 backwards projected with estimates inferred from heights and ISR, for Burundi, Ethiopia, Rwanda, Somalia, and Tanzania. Djibouti’s assumed to be as Ethiopia’s (Prados de la Escosura, 2013). Riley (2005b) provides estimates of 23.9 years for Kenya and Uganda in the 1930s, so I assigned the minimum historical value of 25 years to these countries over 1870-1929. Sudan’s was assumed to be as Kenya’s.

Southern. Data for 1938 backwards projected with estimates inferred from heights and ISR, for Angola, Botswana (1913), Malawi, Mauritius (1870-1913), Namibia (1870-1880), South Africa (1870), Swaziland (1929), and Zambia. Namibia, 1890-1900, assumed to be the same as for blacks in Cape Colony, from Simkins et al. (1989); 1929-1938, from Notkola et al. (2000), estimated from Northern Namibia’s figures adjusted with the ratio all Namibia to Northern Namibia c. 1960. South Africa, 1880-1913, estimates from Simkins et al. (1989). For Zimbabwe, Riley (2005b), following Condé (1973), assigned 26.4 to the 1930s, so I have assigned the minimum goalpost over 1870-1929. Botswana’s (but for 1913), Lesotho’s, and Swaziland’s (but for

1929), were assumed to be identical to Namibia's. Madagascar's, assumed to as Mauritius's and Mozambique's as Malawi's. Mauritius, 1930s, Clio-Infra.

Americas

For Latin America, most data come from Arriaga (1968) and the MOxLAD database (Astorga et al. 2003) (supplemented with the working sheets prepared by Shane and Barbara Hunt which have been kindly provided by Pablo Astorga). In addition, national sources used are:

Argentina, 1870-1890, Recchini de Lattes and Lattes (1975).

Chile, 1890-1900, assumed to have evolved along Argentina; 1913, 1930s, Clio-Infra; 1950-2005, Díaz, Lüders, and Wagner (2016). Uruguay, 1870-1900, assumed to have evolved along Argentina; 1900-1938, MinisteriodeSaludPública(2001), Life expectancy for Colombia, 1870-1900, Cuba, 1870-1900, Panama, 1880-1900, Honduras, 1890-1900, Puerto Rico, 1870-1890, and Venezuela, 1880-1900, has been assumed to evolve along Costa Rica. Ecuador, 1925-1938, assumed to evolve along Paraguay. Peru, 1913-1933, assumed to evolve along Bolivia. Puerto Rico, 1870-1890, assumed it evolves along Costa Rica; 1890, Riley (2005b); 1900-1938, UN (1993). Jamaica, 1870-1880, assumed it evolves along Costa Rica; 1880-1955, Riley (2005a: 198).

Trinidad-Tobago, 1870-1900, assumed to evolve along Jamaica.

Bahamas and Belize, 1870-1938, assumed to evolve along Jamaica.

Barbados, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Surinam, 1870-1938, assumed to evolve along Trinidad and Tobago. St. Kitts and Nevis, 1950-1975, assumed to evolve as Surinam.

Canada, 1870-1890, Clio-Infra; 1925-2010, HMD.

U.S.A., 1870-1890, Haines (1994); 1913-1929, Clio-Infra; 1933-2015, HMD.

In the absence of life expectancy estimates for early years projecting the available figures with infant survival rates (ISR) has derived them for Panama, 1900-1929 and Guyana, 1950-1960. Such a procedure was also used to distribute the average life expectancy estimate for Argentina, 1869-1894.

Asia

Most pre-1950 estimates come from Riley (2005b) who claims that the earliest health transition started in the 1870/1890s when mean and median values were 27.5 and 25.1 years, respectively. Lower bound estimates for 1950 or 1940s levels were used for 1938. In the absence data, pre-1929 life expectancy at birth was assumed to be 25 years. Bahrain, Oman, Qatar, UAR, and Yemen, 1913-1938, assumed to evolve along Kuwait. Brunei Darussalam, 1929-1938, assumed to evolve as Malaysia. Cambodia, 1925-1929, assumed it evolved along China as they had similar levels in 1938; 1938, Siampos (1970), cited in Riley (2005b). China, 1929, Caldwell et al. (1986), cited in Lavelly and Wong (1998); 1930s, Clio-Infra. Hong Kong SAR, 1900-1938, assumed to evolve along Taiwan. India, 1880-1938, Clio-Infra; extrapolated to 1870 with Visaria and Visaria (1982); 1900 and 1925, McAlpin (1983). Indonesia, 1929, Riley (2005b); 1930s, Clio-Infra. Israel, 1950-1980, Clio-Infra; 1985-2010, HMD. Japan, 1870, Riley (2005b); 1880, Janetta and Preston (1991); 1890-1900, Johansson and Mosk (1987); 1950-2015, HMD. Jordan, 1929-1938, assumed to evolve as Syria's. Korea, 1913-2000, Clio-Infra; 2005-2015, HMD. Laos, 1929, assumed to evolve as Vietnam. Lebanon, 1870-1938, assumed to evolve along Cyprus. Malaysia, 1929-1938, obtained by projecting 1950 level backwards with the infant survival rate. Nepal, 1925-1933, assumed to evolve as India. Singapore, 1929-1938, obtained by projecting 1950 level backwards with the infant survival rate. Sri Lanka, 1890-1913, 1938, Langford and Storey (1993); 1929, Sarkar (1951). Taiwan, 1890-1938, Cha and Wu (2002). The level assumed for 1890 by Cha and Wu, 25 years, accepted for 1870-1880. 1950, Glass and Grebenik (1967); 1955, Taiwan Official statistics; 1970-2010, HMD. Thailand, 1938, Vallin (1976). Turkey, 1870-1900 and 1925-1933 assumed to evolve as Greece's; 1913, Pamuk (2007); 1938, Shorter and Macura (1982).

Europe

Albania, 1870-1890, assumed to evolve along Greece; 1900-1933, assumed to evolve along Bulgaria.
 Austria, 1870-1929, Clio-Infra; 1950-2010, HMD.
 Belgium, 1870-2015, HMD.
 Belarus, 1950s, Clio-Infra; 1960-2015, HMD.
 Bulgaria, 1870-1890, assumed to move along Greece; 1913-1938, Clio-Infra; 1950-2010, HMD.
 Croatia, 2005-2015, HMD.
 Cyprus, 1870-1880, assumed to be identical to Greece; 1890, Riley (2005b); 1900-1938, Clio-Infra.
 Czechoslovakia/Czechia, 1870-1938, Sbr (1962); 1890, Riley (2005b); 1950-2015, HMD. Denmark, 1870-2015, HMD.
 Estonia, 1938-1955, Clio-Infra; 1960-2015, HMD.
 Finland, 1870, Kannisto et al. (1999); 1880-2015, HMD.
 France, 1870-2015, HMD.
 Germany (only Federal Republic, 1950-1985), 1870-1890, Flora (1983); 1950s, Clio-Infra; 1960-2015, HMD.
 Greece, 1870-1913, Valaoras (1960), 1933-1980, Clio-Infra; 1985-2015, HMD. Hungary, 1870-1890, assumed to evolve along Austria; 1950-2015, HMD.
 Iceland, 1870-2015, HMD.
 Ireland, 1850-1890, assumed to evolve along the U.K.; 1950-2015, HMD.
 Italy, 1870, Felice et al. (2016); 1880-2010, HMD.
 Latvia and Lithuania, 1925-1955, Clio-Infra; 1960-2010, HMD.
 Luxembourg, 1913-1955, Clio-Infra; 1960-2010, HMD.
 Netherlands, 1870-2015, HMD.
 Norway, 1870-2015, HMD.
 Poland, 1870-1913, assuming it evolved as Czechoslovakia; 1950-2010, HMD. Portugal, 1850-1913, Leite (2005); 1925 (interpolated) and 1933, Valério (2001; I); 1929, Veiga (2005); 1938, United Nations (1993); 1950-2015, HMD.
 Romania, 1870-1880, assumed to evolve along Greece, 1890-1890, and along Bulgaria, 1890-1929.
 Russia, Pressat (1985) for European Russia, 1870-1913, and European Soviet Union, 1929-1938; 1950s, Clio-Infra; 1960-2015, HMD.
 Slovakia, 1925, Clio-Infra; 1929-1938, Sbr (1962); 1950-2015, HMD.
 Slovenia, 1950-1980, Clio-Infra; 1985-2015, HMD.
 Spain, 1870-1890, Felice et al. (2016); 1900, Dopico and Reher (1998); 1913-2015, HMD.
 Sweden, 1870-2010, HMD.
 Switzerland, 1870, Flora (1983); 1880-2010, HMD.
 Ukraine, 1900, Mazur (1969); 1925-1955, Clio-Infra; 1960-2010, HMD.

United Kingdom, 1850-1900, Floud and Harris (1997); 1925-2015, HMD.

Yugoslavia, assumed to evolve along Greece, 1870-1880, and along Bulgaria, 1890-1929. For 1929 and 1938 life expectancy was estimated by projecting the available figures with infant survival rates for 1950.

Oceania

Australia, 1870-1900, Whitwell et al. (1997); 1925-2015, HMD.

New Zealand (adjusted for Maori population up to 1950), 1870, Riley (2005b); 1880-1890, Glass and Grebenik (1967); 1950-2010, HMD.

Average Years of Education

Education attainment is measured by the average years of total schooling (primary, secondary, and tertiary) for population aged 15 and over. Most figures for 2010-2020 derive from the Human Development Reports (UNDP, 2013, 2016, 2021-22). For 1870-2010, the most comprehensive database is the Clio-Infra dataset (<https://www.clio-infra.eu/Indicators/AverageYearsofEducation.html>) put together by Bas van Leeuwen, Jieli van Leeuwen-Li, and Péter Földvári in 2013, which provides decadal figures (years ending in 0). These figures come from historical reconstructions derived from national statistical offices for the post-1960 and the authors' own estimates through the perpetual inventory method up to 1950. Clio-Infra database relies on Morrisson and Murtin (2009) dataset for 78 countries at 10-year intervals.

I completed the dataset with estimates for years ending in 5 between 1915 and 2005 from Földvári and van Leeuwen (2014) for Europe, while for the rest of the world have interpolated them on the basis of Barro and Lee (2013, version 2.2, updated on June 2018) average years of schooling for population aged 15 and over for 1950-2010, and Lee and Lee (2016) dataset for years of schooling for population aged 15-64, for 1915-1935. Specifically, for, say, 2005, the formula used is

$$Y_{2005} = ((2 * X_{2005}) / (X_{2000} + X_{2010})) * (Y_{2000} + Y_{2010}),$$

where Y represents the Clio-Infra values and X those of Barro and Lee (2013, v. 2.2).

I have assigned the values for 1915, 1930, 1935, and 1940 to my 1913, 1929, 1933, and 1938 benchmarks, respectively.

I have filled missing values for earlier years in Clio-Infra by projecting its levels with Lee and Lee (2016) estimates. This was the case for Barbados, Colombia, and Ecuador (1870); Cyprus and Serbia (1870-1880); Czechia and Romania (1870-1890); Iceland, Poland, Gambia, and Zambia (1870-1913); Haiti and Togo (1870-1925); D.R. Congo, Lesotho, Liberia, Libya, Swaziland, Afghanistan, Cambodia, and Jordan (1870-1938).

I have also filled Clio-Infra missing values by projecting its levels with Barro and Lee (2013, 2018) for Estonia, Latvia, Lithuania, Ukraine, Burundi, Central African Republic (C.A.R.), Gabon, Armenia, and Nepal (1950-1955); and Moldova, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan (1950-1965).

Lack of Clio-Infra 1950-2010 estimates for Belize, Albania, Croatia, Malta, Slovenia, Sudan, Bahrain, Brunei Darussalam, Hong Kong, Indonesia, Kuwait, Mongolia, Qatar, Taiwan, United Arab Emirates (U.A.E.), and Yemen led me to use Barro and Lee's (2013, v. 2.2) figures for these countries. For Belize, Albania, Malta, Sudan, Hong Kong, Kuwait, Taiwan, and Yemen, Barro and Lee's figures for 1950 were projected backwards to 1870 with Lee and Lee's (2016) years of schooling. Lastly, missing values for some countries before 1950 have been estimated by assuming they evolved along their neighbours:

Africa

Botswana, 1870-1913, and Namibia, 1870-1938, assumed to evolve as Lesotho; pre-1960 Burkina Faso, Chad, and Guinea, as Mali, Niger, and Sierra Leone, respectively; pre-1950 Burundi and Rwanda, as Uganda; pre-1950 CAR, Congo, and Gabon, as Cameroon; pre-1950 Mauritania as Senegal; pre-1950 Tanzania as Kenya; Seychelles, 1870-1913, as Mauritius. Guinea-Bissau, 1870-2010, was assumed to evolve as Guinea.

Americas

Bahamas, 1870-1990, assumed to evolve along Barbados and St. Kitts and Nevis and St. Vincent and the Grenadines, 1870-2005, as Trinidad-Tobago.

Asia

It has been assumed that pre-1929 Lebanon evolved as Cyprus; pre-1950 Laos as Cambodia; and pre-1950 Bahrain, Brunei-Darussalam, Qatar, Saudi Arabia, and United Arab Emirates (U.A.E.) as Kuwait.

Maximum and the minimum values are established at 15 and 0 years, respectively. However, the lowest historical value was set at 0.1 years of education. Such a 'floor' precludes a zero value for the transformed education index and, consequently, for the HIHD.

Europe

Germany, 1950-1985, only the Federal Republic.

Liberal Democracy Index

Varieties of Democracy [V-Dem.12] provides the Liberal Democracy Index (Coppedge et al., 2022). It combines the Electoral Democracy Index and the Liberal Index. The former incorporates indices of freedom of association, expression, suffrage, and clean elections. The latter includes indices of equality before the law and individual liberty, judicial constraints on the executive, and legislative constraints on the executive.

The index ranges between 0, low, and 1, high. As for other dimensions of human development I have adopted a 'floor' level that in this case is 0.01.

In the absence of data for the Liberal Democracy Index it was assumed the index evolved as the Liberal Index or, alternatively, as the Electoral Democracy Index.

Missing values for some countries (mostly) before 1900, have been derived by assuming that they evolved along their neighbours and, exceptionally, were assigned the same values. When values for 1900 or 1913 were very low, I assigned the 'floor' value of 0.01 for previous benchmark years, unless the level was above 0.02, in which case I subtracted 0.01 for

each previous decadal benchmark successively until reaching the 'floor' value.

Africa

Lacking estimates for most countries in Sub Saharan Africa over 1870-1890, except for Ethiopia, Liberia, Madagascar, and Tanzania, I have assigned the 'floor' value of 0.01; when the level in 1900 was above 0.02, I followed the procedure described above. These assumptions are consistent with the low values for 1913. In the case of South Africa, I assumed it evolved along the Orange Free State in Polity 2 (Polity 4 database) (Marshall et al., 2018). Algeria, 1870-1890 assumed to evolve as Tunisia. Cameroon, 1920-1960, assumed to evolve as Gabon.

Americas

Jamaica, 1870-1890, assumed to evolve along Cuba. The Bahamas and Belize, 1950-2020, assumed to have the same values as Jamaica. St. Kitts, St. Lucia, and St. Vincent and the Grenadines, 1950-2020, same values as Barbados.

Asia

Bangladesh, 1950-1970, as it was part of Pakistan, the latter's values were accepted. Brunei Darussalam, 1950-2020, same values as Malaysia.

Cambodia and Laos, 1870-1890, assumed to evolve along Vietnam.

Kuwait and Qatar, 1870-1900, and Iraq, Jordan, Lebanon, and Syria, 1870-1913, assumed to evolve as Turkey.

Hong-Kong and Taiwan, 1870-1900, assumed to evolve along China.

Malaysia, 1870-1890, assumed to evolve as Singapore. Philippines, 1870-1890, assumed to evolve as Cuba, another Spanish colony.

Qatar, 1870-1890, assume to evolve as Oman.

Sri Lanka, 1870-1890, assumed to evolve as India.

United Arab Emirates, 1870-1970, assumed to evolve as Qatar.

Yemen, 1870-1985, was the average of North and South Yemen.

Iran and Oman, 1870-1890, were assigned the 'floor' value (0.01).

Europe

Albania, 1870-1900, as an Ottoman colony, same values as Turkey. Czechoslovakia, 1870-1913, as it was part of Austria-Hungary, I used the average value of Austria and Hungary. Czechia and Slovakia, 1990, as part of Czechoslovakia, were assigned its values. Germany, only the Federal Republic, 1950-1985. Ireland, 1870-1913, as it was part of the United Kingdom, I accepted the UK values. Poland, 1870-1913, as it was part of Russia I used the latter's values. Belarus, Estonia, Latvia, Lithuania, Moldova, Ukraine, Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, and Uzbekistan, 1980-1985, and Kazakhstan, 1980-1990, as part of the USSR, received its average values. Serbia, Croatia, 1980-1990, and Slovenia, 1980-1985, as part of Yugoslavia, were assigned its values.

Per Capita GDP

GDP per head is expressed in 1990 Geary-Khamis dollars. GDP per head data come from the Maddison Project Database (2013, 2018) [MPD 2013, MPD2018], completed with Maddison (2006, 2010), and the World Bank's World Development Indicators, CEPAL (2009) and (2017) <http://interwp.cepal.org/> provide most of the data for Latin America since 1950. For China since 1950, Conference Board (2016) "alternative" series have been accepted. Otherwise, as shown below, per capita GDP levels for (usually) 1950 have been projected backwards with volume indices of real per capita GDP taken from historical national accounts.

I have assumed a lower bound for per capita GDP that has been set at \$ 300, which represents a basic level of physiological subsistence (Sagar and Najam, 1998; Milanovic et al., 2011), below both the World Bank's extreme poverty threshold of \$1 per day/person and Maddison's (2006) \$400 per capita.

Africa

Most pre-1950 estimates come by projecting MDP2018 level for 1950 with Prados de la Escosura (2012) estimates. For North Africa, 1870-1950, estimates come from Maddison (2006: 577-580) completed with interpolations on the basis of my own indirect

estimates. For Algeria, I interpolated the levels for 1890 and 1900. For Tunisia, I accepted Maddison estimates for 1913 and interpolated the rest of the benchmarks. In the case of Morocco, I found Maddison's level for 1913 too low relative to Tunisia's, and used my own estimates. For Egypt, Maddison figures were also used but re-scaled by accepting Pamuk (2006) level for 1950. In the case of South Africa, I deflated Stadler (1963) nominal GDP estimates for 1913-1950 with Alvaredo and Atkinson (2010) price index, and used population figures from Feinstein (2005: 257-8) to derive per capita GDP. Then, the 1913 level was projected backwards to 1870 with my own indirect estimates.

Further assumptions were needed to fill missing values of GDP per head for some Sub-Saharan countries. Following Maddison's approach, I assumed that growth trends for missing countries were similar to those of their neighbours. Thus, in the case of French Equatorial Africa (CAR, Congo, Gabon, and Chad), 1870-1929, I assumed they grew as similar countries (coastal or landlocked, resource abundant or scarce) in French West Africa. Similarly, during the same period, Cameroon, Guinea-Bissau, and Togo were assumed to grow at the same rate of similar countries in West French Africa. Liberia was assumed to evolve as Sierra Leone over 1900-1913. I assumed The Gambia (1870-1913) and Sierra Leone (1870-1900) evolved alongside Ghana. In East Africa, I accepted Uganda's pace of growth for Rwanda and Burundi (1913-1929) while Kenya's pace of growth during 1870-1913 was assumed to be similar to Tanzania's. Also, Ethiopia and Sudan were assumed to evolve as Egypt over 1870-1913. In southern Africa, Mozambique was accepted to evolve as Angola (1870-1900), and Zambia and Malawi (1913-1929) as Zimbabwe. Lastly, in the cases of Botswana and Lesotho (1913-1938), Namibia (1870-1929), and Swaziland (1870-1938), I accepted the growth rate for South Africa.

Americas

For 1950-2020, MPD2018 benchmark for 1990 has been projected back and forth with CEPAL (2009, 2020) <http://interwp.cepal.org/>, and <https://statistics.cepal.org/portal/cepalstat/index.html?lang=en> except for Cuba, 1950-1990. For the pre-1950 period, per capita GDP volumes derive from MPD2018, MPD2103, Astorga and Fitzgerald (1998) and MOxLAD database (Astorga et al. 2003). Otherwise the following national sources have been used.

Argentina, Della Paolera et al. (2003), 1884-1950. The resulting level for 1884 was projected backwards 1875 with Cortés Conde (1997) growth rate and assumed the level of 1870 to be equal to that of 1875. Brazil, 1870-1950, Goldsmith (1986). Bolivia, 1870-1950, Herranz-Loncán and Peres Cajías (2016). Figures for 1870 and 1880 interpolated from those for 1850 and 1883. Chile, 1870-1950, Díaz, Lüders and Wagner (2016). Colombia, 1870-1905, Kalmanovitz Krauter and López Rivera (2009) and data kindly provided by Salomon Kalmanovitz (private communication); 1905-1950, GRECO (2002). Cuba, up to 1902, Santamaría (2005); 1902-1958, Ward and Devereux (2012); 1958-1990, MDP2018; 1990-2020, CEPAL (2017). An important caveat: neither the MPD2018 (nor Maddison's 2006, 2010) benchmark level for 1990 has been accepted. The reason is that, given the lack of PPPs for Cuba in 1990, Maddison (2006: 192) assumed Cuban per capita GDP was 15 per cent below the Latin American average. Since this is an arbitrary assumption, I started from Brundenius and Zimbalist's (1989) estimate of Cuba's GDP per head relative to six major Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela, LA6) in 1980 (provided in Astorga and Fitzgerald, 1998) and applied this ratio to the average per capita income of LA6 in 1980 Geary-Khamis dollars to derive Cuba's level in 1980. Then, following Maddison (1995: 166), I derived the level for 1990 with the growth rate of real per capita GDP at national prices over 1980-1990 and reflat the result with the US implicit GDP deflator in order to arrive to an estimate of per capita GDP in 1990 at 1990 Geary-Khamis dollars. Interestingly, Cuba's position relative to the US in 1929 and 1955 is very close to the one Ward and Devereux (2012) estimated using a different approach. Jamaica, 1870-1929, Eisner (1961). Mexico, 1870-1900, Coatsworth (1989: 41); 1896-1950, INEGI (1995). Puerto Rico, 1900-1940, Devereux (2017); 1940-1950, Anuario Estadístico de Puerto Rico (1955). Peru, 1870-1950, Seminario (2012). Uruguay, 1870-1950, Bértola (2016). Venezuela, 1870-1950, Batista (1997). Central America (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua), I derived the level for 1913 by assuming the growth over 1913-20 was identical to that of 1920-25, the latter derived from OxLAD database (Astorga et al. 2003). Caribbean. Bahamas, Barbados, Belize, Guyana, since 1950, Trinidad-Tobago, 1950-1970, and St. Kitts and Nevis, St. Vincent and the Grenadines, from 1990, Maddison

(2006, 2010), Conference Board (2016), and Bulmer-Thomas (kindly provided in private communication)

Asia

Middle East (Iran, Iraq, Jordan, Lebanon, Palestine (Israel), Saudi Arabia, Syria, Yemen, and the Gulf (Bahrain, Kuwait, Oman, Qatar, UAE), 1870-1913, Pamuk (2006) Cambodia and Laos were assumed to evolve alongside Vietnam, 1870-1938.

Korea, 1870-1913, MPD2013; 1913-1938, Cha and Kim (2006). I obtained the figures for 1880-1900 through log-linear interpolation. Myanmar, 1880-1890, assumed to evolve along India. Malaysia, 1870-1913, assumed to evolve along Indonesia. Philippines, 1890, Bourguignon and Morrisson (2002). Turkey, MPD2013. 1880, Altug et al. (2009) with 1890-1900 figures log-linearly interpolated. Taiwan, 1890-1900, assumed to evolve as China's; 1900, Cha and Wu (2002). For the Middle East, Indochina (Cambodia, Laos, and Vietnam), and Hong Kong, I interpolated log-linearly the values for 1880-1900 and 1935-1938.

Europe

Austria, 1870-1913, Maddison (2010) level for 1913 projected backwards with Schulze (2000) estimates for Imperial Austria under the assumption that real output per head in Modern Austria moved along Imperial Austria's. Belgium, 1870-1913, Horlings (1997); 1929-1938, average of GDP estimates of income and expenditure approaches in Buyst (1997), and output in Horlings (1997). Bulgaria, 1890-1913, Maddison (2010). 1880, interpolated. Czechoslovakia, 1880, computed with Good (1994) ratio of 1880 GDP per head to the average GDP per head of 1870 and 1890 applied to MPD2018 average levels for 1870 and 1890. Cyprus, 1913-1950, Apostolides (2011). I assumed the level for 1913 was identical to that for 1921. France, 1870-1950, Toutain (1997). Germany, only Federal Republic, 1950-1985. Greece, 1870-1938, Kostelenos et al. (2007) moving base series. Hungary, 1870-1913, Schulze (2000) estimates for Imperial Hungary. Ireland, 1880-1900, applying the ratio Ireland/UK in 1913 to UK real per capita GDP. Malta, 1913-1950, Apostolides (2011). I assumed the level for 1913 was identical to that for 1921. Portugal, 1850-1913, Lains (2006).

Romania, MPD2013. 1880, computed with Good (1994) ratio of 1880 GDP per head to the average GDP per head of 1870 and 1890 applied to MPD2013 average levels for 1870 and 1890. Russia, 1870-1885, Imperial Russia, Goldsmith (1961), agricultural and industrial output weighted with Gregory (1982) weights for 1883-87; 1885-1913, Gregory (1982, Table 3.1); 1913-1928, Markevich and Harrison (2011). Spain, 1870-2020, Prados de la Escosura (2017, updated). United Kingdom, 1850-1913, MPD2013. Yugoslavia, 1880, computed with Good (1994) ratio of 1880 GDP per head to the average GDP per head of 1870 and 1890 applied to MPD2018 average levels for 1870 and 1890.

Oceania

New Zealand, 1870-1990, kindly provided by Les Oxley in private communication.

Population

All figures are adjusted to refer to mid-year and to take into account the territorial changes and are derived from the World Bank's World Development Indicators and UNESCO, <http://data.uis.unesco.org/>, for 1960-2020, Maddison (2010), and Mitchell (2003a, 2003b, 2003c), completed for Latin America and the Caribbean with CEPAL (2009 and 2016), 1950-2015, and OxLAD database (Astorga et al., 2003), 1900-1938. Otherwise, national sources were used. Czechoslovakia/Czechia, population of the territory of Czechoslovakia over 1870-1985. Germany, includes the Democratic Republic (1950-1985). Serbia/Yugoslavia. 1870-1975, population of the territory of Yugoslavia; 1980-2020, population of Yugoslavia except Croatia and Slovenia. Russia. 1870-1913, Russia Empire; 1925-1975, USSR; 1980-2020, Russian Federation. Cyprus, 1929-1938, Apostolides (2011). Spain, 1870-2020, Prados de la Escosura (2017, updated). Turkey, 1870-1913, Pamuk (2006, 2007). Algeria and Tunisia, 1870-1950, Fargues (1986). South Africa, 1870-2000, Feinstein (2005). Sub-Saharan Africa, 1910-1950 data come from Smits (private communication), completed with Banks (2010), for Ethiopia, Liberia, Malawi, and Sierra Leone. Missing observations for Sub-Saharan African countries in the late 19th century were filled by assuming the average growth rate for countries in the region.

References

- Altug, S., A. Filiztekin, and S. Pamuk, "Sources of Long-term Growth for Turkey, 1880-2005," *European Review of Economic History*, 12, 393-430, 2008.
- Alvaredo, F., and A.B. Atkinson, "Colonial Rule, Apartheid and Natural Resources: Top Incomes in South Africa 1903-2005," *OxCarre Research paper* 46/2010.
- Apostolides, A., "The Growth of Two Small Economies in the Great Depression: GDP Estimation for Cyprus and Malta during the Interwar Period (1921-1938)," *MPRA Paper* 30276, 2011 <http://mpra.ub.uni-muenchen.de/30276/>
- Arriaga, E. E., *New Life Tables for Latin American Populations in the Nineteenth and Twentieth Centuries*, Population Monographs Series No. 3, Institute of International Studies, University of California Berkeley, 1968.
- Astorga, P. and V. Fitzgerald, "Statistical Appendix," in R. Thorp, *Progress, Poverty and Exclusion An Economic History of Latin America in the 20th Century*, 307-365, Inter-American Development Bank, Washington, 1998.
- Astorga, P., Bergés, A. R., and FitzGerald, E. V. K., "The Oxford Latin American Economic History Database [OxLAD]," Oxford: Latin American Centre, Oxford University, 2003. Available at: <http://oxlad.geh.ox.ac.uk/> now at: <http://moxlad.fcs.edu.uy/>
- Ayeni, O., "Retrospective estimates of mortality from the Nigerian medical censuses of 1930-1932: a research note", *Nigerian Journal of Economic and Social Studies* 18, 461-469, 1976.
- Banks, A. S., "Cross-National Time-Series Data Archive," 2010 <http://www.databanksinternational.com/>
- Baptista, A., *Bases cuantitativas de la economía venezolana, 1830-1995*, Fundación Polar, Caracas, 1997.
- Barro, R. and J.W. Lee, "A New Data Set of Educational Attainment in the World, 1950-2010", *Journal of Development Economics* 104, 184-198 (2013) (Updated dataset v 2.1, February 2016) <http://www.barrolee.com/>
- Bértola, L., *El PBI de Uruguay, 1870-1936 y otras estimaciones*, Universidad de la República, Montevideo, 1998.
- Bourbeau, J. Légaré and V. Émond, "New Birth Cohort Life Tables for Canada and Quebec, 1801-1991," *Statistics Canada, Demographic Division, Research Paper* 3, 1997, available at: www.statcan.ca
- Bourguignon, F. and C. Morrisson, "Inequality among World Citizens," *American Economic Review*, 92, 727-744, 2002 (data available at <http://www.delta.ens.fr/XIX>)
- Braun, J., M. Braun, I. Briones, and J. Díaz, "Economía chilena, 1810-1995. Estadísticas históricas," Pontificia Universidad Católica de Chile, Instituto de Economía, Documento de Trabajo 187, 2000.
- Brundenius C. and A. Zimbalist, *The Cuban Economy: Measurement and Analysis of Socialist Performance*, Johns Hopkins University Press, Baltimore, 1989.
- Bureau of Economic Analysis (BEA), "GDP by Industry, 1910 to 2009," 2010, available at http://www.bea.gov/industry/iotables/prod/table_list.cfm?anon=56082
- Buyst, E., "New GNP Estimates for the Belgian Economy during the Interwar Period," *Review of Income and Wealth*, 43, 357-375, 1997.
- Caldwell, J., M. Bracher, G. Santow, and P. Caldwell, "Population Trends in China—A Perspective Provided by the 1982 Census," in C. Li, ed., *A Census of One Billion People*, 352-392, Republic of China Population Census Office, Hong Kong, 1986.
- Cha, M.S. and N. N. Kim, "Korea's First Industrial Revolution, 1911-40," *Naksungdae Institute of Economic Research [NIER] Working Papers Series* 3, 2006, available at: <http://www.naksung.re.kr/papers/wp2006-3.pdf>

Cha, M.S. and T.M. Wu, "Colonial Transition to Modern Economic Growth in Korea and Taiwan," Unpublished manuscript 2002.

Clio-Infra Dataset, <https://www.clio-infra.eu/>

Coatsworth, J.H., "The Decline of the Mexican Economy, 1800-1860," in R. Liehr, ed., *América Latina en la época de Simón Bolívar. La formación de las economías nacionales y los intereses económicos europeos 1800-1850*, 27-53, Colloquium, Berlin, 1989. Comisión Económica para América Latina y el Caribe [CEPAL], "América Latina y el Caribe. Series históricas de estadísticas económicas 1950-2008," Cuadernos Estadísticos 37, 2009, available at: <http://www.eclac.cl/deype/cuaderno37/index.htm>

Conference Board, "Total Economy Database", May 2016, <http://www.conference-board.org/data/economydatabase/>

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>

Cortés Conde, R., *La economía argentina en el largo plazo*, Editorial Sudamericana/Universidad de San Andrés, Buenos Aires, 1997.

Costa, D.L. and R.H. Steckel, "Long-Term Trends in Health, Welfare, and Economic Growth in the United States," in R.H. Steckel and R. Floud, eds., *Health and Welfare during Industrialization*, 47-89, University of Chicago Press, Chicago, 1997.

Della Paolera, G., A. M. Taylor, and C. G. Bozolli, "Historical Statistics", in G. Della Paolera and A. M. Taylor, eds., *A New Economic History of Argentina*, 376-385, Cambridge University Press, New York, 2003.

Deprez, P., "The Low Countries," in W. R. Lee, ed., *European Demography and Economic Growth*, 236-283, Croom Helm, London, 1979.

Devereux, J., *Arrested Development? Puerto Rico in an American Century*, 2017 (mimeo). Díaz, J., R. Lüders, and G. Wagner (2016), *Chile 1810 – 2010. La República en cifras. Historical Statistics*, Santiago: Ediciones Universidad Católica de Chile. <http://cliolab.economia.uc.cl/BD.html>

Dopico, F. and D.S. Reher, *El declive de la mortalidad en España, 1860-1930*, Asociación de Demografía Histórica, Monografía No. 1, 1998.

Easterly, W., "Life after Growth," *Journal of Economic Growth*, 4, 239-276, 1999, underlying data available at: <http://www.worldbank.org/html/prdmg/grthweb/growth.t.htm>

Eckstein, A., "National Income and Capital Formation in Hungary, 1900-1950," *Income and Wealth*, V, 150-223, 1955.

Eisner, G., *Jamaica, 1830-1930: A Study in Economic Growth*, Manchester University Press, Manchester, 1961.

Fargues, P., "Un siècle de transition démographique en Afrique méditerranéenne 1885-1985", *Population* 41 (2), 205-232, 1986

Feinstein, C.H., *An Economic History of South Africa. Conquest, Discrimination and Development*, Cambridge University Press, Cambridge, 2005.

Felice, E., J. Pujol Andreu, and C. d'Ippoliti (2016), "GDP and life expectancy in Italy and Spain over the long run: A time-series approach", *Demographic Research* 35: 813-866 <http://www.demographic-research.org/Volumes/Vol35/28/>

Fenoaltea, S., "The Growth of the Italian Economy, 1861-1913: Preliminary Second-generation Estimates," *European Review of Economic History*, 9, 273-312, 2005.

Flora, P., *State, Economy, and Society in Western Europe 1815-1975. A Data Handbook in Two Volumes*, Campus, Frankfurt, 1983.

Floud, R. and B Harris, "Health, Height, and Welfare: Britain, 1700-1980," in R.H. Steckel and R. Floud, eds., *Health and Welfare during Industrialization*, 91-126, University of Chicago Press, Chicago, 1997.

Földvári, P. and B. van Leeuwen (2014), "Educational and income inequality in Europe, ca. 1870–2000", *Cliometrica* 8: 271-300.

Frankema, E., Jerven, M., *The Missing Link. Reconstructing African population growth, 1850-present* (mimeo), 2012

- Glass, D.V. and E. Grebenik, "World Population, 1800-1950", in H.J. Habakkuk and M. Postan, eds., *Cambridge Economic History of Europe*, Vol. VI. The Industrial Revolutions and After: Incomes, Population, and Technological Change, Part I, 56-138, Cambridge University Press, Cambridge, 1967.
- Goldsmith, R. W., "The Economic Growth of Tsarist Russia: 1860-1913," *Economic Development and Cultural Change*, 9, 441-475, 1961.
- Goldsmith, R. W., *Desenvolvimento financeiro sob um século de inflação*, Harper & Row do Brasil, Rio de Janeiro, 1986.
- Good, D.F., "The Economic Lag of Central and Eastern Europe: Income Estimates for the Habsburg Successor States, 1870-1910," *Journal of Economic History*, 54, 869-891, 1994.
- GRECO (Grupo de Estudios de Crecimiento Económico), *El Crecimiento económico colombiano en el Siglo XX*, Banco de la República/Fondo de Cultura Económica, Bogotá, 2002. Gregory, P., *Russian National Income*, Cambridge University Press, Cambridge, 1982.
- Haber, S., ed., *How Latin America Fell Behind? Essays on the Economic Histories of Brazil and Mexico, 1800-1914*, Stanford: Stanford University Press, 1997.
- Haines, M., "Estimated Life Tables for the United States, 1850-1900," National Bureau of Economic Research Working Paper Series on Historical Factors in Long Run Growth 15, 1994.
- Hayami, Y. and V.W. Ruttan, *Agricultural Development An International Perspective*, Johns Hopkins University Press, Baltimore, 1985.
- Herranz-Loncán, A. And J.A. Peres-Cajías, "Tracking the Reversal of Fortune in the Americas. Bolivian GDP per capita since the mid-nineteenth century," *Cliometrica* 10 (1), 99-12, 2016.
- Hjerpe, R., *Finland's Historical National Accounts 1860-1994: Calculation Methods and Statistical Tables*. J.Y.H.L., Jyväskylä, 1996.
- Hoffmann, W.G., F. Grumbach, and H. Hesse, *Das Wachstum der Deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts*, Springer, Berlin, 1965.
- Honda, G., "Differential Structure, Differential Health: Industrialization in Japan, 1868-1940," in R.H. Steckel and R. Floud, eds., *Health and Welfare during Industrialization*, 251-284, University of Chicago Press, Chicago, 1997.
- Horlings, E., "The Contribution of the Service Sector to Gross Domestic Product in Belgium, 1835-1990," Universiteit Utrecht, Unpublished manuscript, 1997. [The] Human Mortality Dataset, <https://www.mortality.org/>
- INEGI, *Estadísticas históricas de México*, INEGI, México DF, 1995.
- International Monetary Fund (IMF) (2010), *International Financial Statistics*, IMF, Washington D.C., 2010.
- Jannetta, A.B. and S.H. Preston, "Two Centuries of Mortality Change in Central Japan: The Evidence from a Temple Death Register," *Population Studies*, 45, 417-436, 1991.
- Johansson, S.R. and C. Mosk, "Exposure, Resistance and Life Expectancy: Disease and Death during the Economic Development of Japan, 1900-1960," *Population Studies*, 41, 207-235, 1987.
- Kalmanovitz Krauter, S. and E. López Rivera, *Las cuentas nacionales de Colombia en el siglo XIX*, Universidad de Bogotá Jorge Tadeo Lozano, Bogotá, 2009.
- Kannisto, V., M. Nieminen, and O. Turpeinen, "Finnish Life Tables since 1751," *Demographic Research* 1, 1999, available at: www.demographic-research.org/Volumes/Vol1/1 Kendrick, J.W., *Productivity Trends in the United States*, National Bureau of Economic Research, Princeton, N.J., 1961.
- Keyfitz, N. and W. Fleiger, *World Population: An Analysis of Vital Data*, University of Chicago Press, Chicago, 1968.
- Kostelenos, G. and Associates, *Gross Domestic Product, 1830-1939 (in Greek)*, Centre of Planning and Economic Research (KEPE), Athens, 2007.

- Lains, P., "Growth in a Protected Environment: Portugal, 1850-1950," *Research in Economic History*, 24, 121-163, 2006.
- Langford, C. and P. Storey, "Sex Differentials in Mortality Early in the Twentieth Century: Sri Lanka and India Compared," *Population and Development Review* 19, 263-282, 1993.
- Lavelly, W. and R. B. Wong, "Revising the Malthusian Narrative: The Comparative Study of Population Dynamics in Late Imperial China," *Journal of Asian Studies*, 57, 714-748, 1998.
- Lee, J.-W. and H. Lee, "Human Capital in the Long Run," *Journal of Development Economics*, 122, 147-169 (2016). Dataset accessible at http://www.barrolee.com/Lee_Lee_LRdata.htm
- Lee, W. R., "Germany," in W. R. Lee, ed., *European Demography and Economic Growth*, 144-195, Croom Helm, London, 1979.
- Leite, Joaquim da Costa, "População e crescimento económico," in P. Lains and A. Ferreira da Silva, eds., *História Económica de Portugal 1700-2000 Vol. II O Século XIX*, 43-81, Imprensa de Ciências Sociais, Lisboa, 2005.
- Lindert, P.H., *Growing Public. Social Spending and Economic Growth since the Eighteenth Century*, Cambridge University Press, Cambridge, 2004.
- Maddison, A., "Statistics on world population, GDP and per capita GDP, 1-2008 AD," 2010, horizontal file <http://www.ggdc.net/maddison/>
- Maddison, A., *Monitoring the World Economy, 1820-1992*, OECD Development Centre, Paris, 1995.
- Maddison, A., *The World Economy*, OECD Development Centre, Paris, 2006.
- Maddison Project Database, 2013 <http://www.ggdc.net/maddison/maddison-project/home.htm>
- Markevich, A. and M. Harrison, "Russia's Real National Income: The Great War, Civil War, and Recovery, 1913 to 1928," *Journal of Economic History*, 71, 672-703, 2011.
- Marschalck, P., "The Age of Demographic Transition: Mortality and Fertility," in K.J. Bade, ed., *Population, Labour and Migration in 19th and 20th Century Germany*, 15-33, Berg, Leamington Spa/Hamburg, 1987.
- Marshall, M.G., T.R. Gurr, and K. Jagers (2018), *Polity IV Project. Political Regime Characteristics and Transitions, 1800-2017*, Vienna, VA: Center for Systemic Peace <http://www.systemicpeace.org/inscrdata.html>
- Mazur, D. P., "Expectancy of Life at Birth in 36 Nationalities of the Soviet Union: 1958-60," *Population Studies*, 23, 225-246, 1969.
- Mbaku, J.M. (2003). Entrenching economic freedom in Africa, *Cato Journal* 23 (2), 217-225. McAlpin, M.B., "Famines, Epidemics, and Population Growth: The Case of India," *Journal of Interdisciplinary History*, 14, 352-366, 1983.
- Ministerio de Salud Pública, *Tablas de Mortalidad del Uruguay por sexo y edad / 1908 - 1999*, Montevideo: Ministerio de Salud Pública, Dirección General de la Salud, Departamento de Estadística, 2001.
- Mitchell, B. R., *International Historical Statistics: Africa, Asia, and Oceania 1750-2000*, Palgrave Macmillan, New York, 2003a.
- Mitchell, B. R., *International Historical Statistics: Europe 1750-2000*, Palgrave Macmillan, New York, 2003c.
- Mitchell, B. R., *International Historical Statistics: The Americas, 1750-2000*, Palgrave Macmillan, New York, 2003b.
- Mitchell, B.R., *British Historical Statistics*, Cambridge University Press, Cambridge, 1988. Morrisson, Ch. and F. Murtin (2009), "The Century of Education," *Journal of Human Capital* 3(1): 1-42
- Nicolau, R., "Población, salud y actividad," in A. Carreras and X. Tafunell, eds., *Estadísticas Históricas de España. Siglos XIX-XX*, II, pp. 77-154, Fundación BBVA, Bilbao, 2005.
- Notkola, V., Timaeus, I.M., Siiskonen, H., "Mortality transition in the Ovamboland region of Namibia, 1930-1990", *Population Studies* 54 (2), 153-167, 2000

- Pamuk, S., "Economic Change in Twentieth Century Turkey: Is the Glass More than Half Full?," American University of Paris Working Paper 41, 2007.
- Pamuk, S., "Estimating Economic Growth in the Middle East since 1820," *Journal of Economic History* 66, 809-828, 2006.
- Prados de la Escosura, L., "Augmented Human Development in the Age of Globalisation," *Economic History Review* 74, 4, 946-975, 2021.
- Prados de la Escosura, L., "Human Development in Africa: A Long-run Perspective," *Explorations in Economic History*, 50, 161-178, 2013.
- Prados de la Escosura, L., "Output per Head in Pre-Independence Africa: Quantitative Conjectures," *Economic History of Developing Regions*, 27, 1-35, 2012.
- Prados de la Escosura, L., *Spanish Economic Growth, 1850-2015*, Palgrave-Macmillan, London, 2017.
- Pressat, R., "Historical Perspectives on the Population of the Soviet Union," *Population and Development Review*, 11, 315-334, 1985.
- Recchini de Lattes, Z. and A. E. Lattes, eds., *La población de Argentina*, Instituto Nacional de Estadística y Censos, Buenos Aires, 1975.
- Rhode, P.W., *Gallman's Annual Output Series for the United States, 1834-1909*, NBER Working Paper 8860, 2002.
- Riley, J.C., *Poverty and Life Expectancy. The Jamaica Paradox*, Cambridge University Press, New York, 2005a.
- Riley, J.C., "The Timing and Pace of Health Transitions Around the World," *Population and Development Review*, 31, 741-764, 2005b.
- Riley, J.C., "Bibliography of Works Providing Estimates of Life Expectancy at Birth and Estimates of the Beginning Period of Health Transitions in Countries with a Population in 2000 of at Least 400,000," 2005c, available at: www.lifetable.de/RileyBib.htm
- Ritschl, A. and M. Spoerer, "Das Bruttosozialprodukt in Deutschland nach den amtlichen Volkseinkommens- und Sozialprodukts Statistiken 1901-1995," *Jahrbuch für Wirtschaftsgeschichte*, 2, 27-54, 1997.
- Sandberg, L.G. and R.H. Steckel, "Was Industrialization Hazardous to Your Health? Not in Sweden," in R.H. Steckel and R. Floud, eds., *Health and Welfare during Industrialization*, 127-159, University of Chicago Press, Chicago, 1997.
- Santamaría, A., "Las cuentas nacionales de Cuba, 1690-2005," Centro de Estudios Históricos, Centro Superior de Investigaciones Científicas, Unpublished manuscript, 2005.
- Sarkar, N.K., "A Note on Abridged Life Tables for Ceylon, 1900-1947," *Population Studies*, 4, 439-443, 1951.
- Schulze, M.S., "Patterns of Growth and Stagnation in the Late Nineteenth Century Habsburg Economy," *European Review of Economic History*, 4, 311-340, 2000.
- Shorter, F.C. and M. Macura, *Trends in Fertility and Mortality in Turkey 1935-1975*, National Academy Press, Washington, D.C., 1982.
- Siampos, G.S., "The Population of Cambodia, 1945-1980," *Milbank Memorial Fund Quarterly*, 48, 317-360, 1970.
- Simkins, Ch., van Heyningen, E. (1989). *Mortality and migration in the Cape Colony, 1891-1904*. *International Journal of African Historical Studies* 22 (1), 79-111
- Smits, J.P., E. Horlings and J.L. van Zanden, *Dutch GNP and its Components, 1800-1913*, Groningen Growth and Development Centre Research Monograph no. 5, 2000.
- Srb, V., "Population Development and Population Policy in Czechoslovakia," *Population Studies*, 16, 147-159, 1962.
- Stadler, J. J., "The Gross Domestic Product of South Africa 1911-1959," *South African Journal of Economics* 31 (3), 185-208, 1963

- Statistics Canada, Historical Statistics of Canada, 2004, available at: <http://www.statcan.ca/>
- Steckel, R.H. and R. Floud, "Conclusions," in R.H. Steckel and R. Floud, eds., *Health and Welfare during Industrialization*, 423-449, University of Chicago Press, Chicago, 1997.
- Tonder, J. L. van, van Eeden, I.J., *Abridged Life Tables for All the Population Groups in the Republic of South Africa (1921-70)*. Institute for Sociological, Demographic and Criminological Research, Human Sciences Research Council, Pretoria, 1975.
- Toutain, J.C., "Le produit intérieur brut de la France, 1789-1990," *Economies et Sociétés. Histoire Economique Quantitative*, 11, 5-136, 1997.
- Tsai, W-H., "The Growth of Taiwan's Aging Population and its Socio-economic Consequences," *Taiwanese Gerontological Forum* 1, 1-10, 2008.
- United Nations Development Programme [UNDP], *Human Development Report 2021/2022: Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World*. UNDP, New York, 2022.
- United Nations Development Program [UNDP], *Human Development Report*, Oxford University Press, New York, 1990-2018.
- United Nations Development Program [UNDP], *Human Development Report*, Oxford University Press, New York, 2010.
- United Nations, *Demographic Yearbook 1948*, United Nations, Lake Success, New York, 1949. United Nations, *Demographic Yearbook 1991 Special Issue: Population Ageing and the Situation of Elderly Persons*, United Nations, New York, 1993.
- United Nations, *Demographic Yearbook Historical Supplement 1948-1997*, United Nations, New York, 2000.
- United Nations, *Report on International Definition and Measurement of Standards and Levels of Living*, United Nations, New York, 1954.
- Urquhart, M.C., *Gross National Product, Canada 1870-1926: The Derivation of the Estimates*, McGill-Queen's University Press, Kingston, 1993.
- Valaoras, V., "A Reconstruction of the Demographic History of Modern Greece," *Miliband Memorial Fund Quarterly*, 38, 114-139, 1960.
- Vallin, J., "La population de la Thaïlande," *Population*, 31, 153-175, 1976.
- Vamplew, W., ed., *Australians. Historical Statistics*, Fairfax, Syme, and Weldon, Broadway, 1987.
- Vanhanen, T. (2016), *Measures of Democracy 1810-2014*. FSD1289, Version 7.0 (2016-05-30). Finnish Social Science Data Archive, Available at <http://urn.fi/urn:nbn:fi:fsd:T-FSD1289>
- Veiga, T. Rodrigues, "A transição demográfica," in P. Lains and A. Ferreira da Silva, eds., *História Económica de Portugal 1700-2000 Vol. III O Século XX*, 37-63, Imprensa de Ciências Sociais, Lisboa, 2005.
- Visaria, L. and P. Visaria, "Population (1757-1947)," in D. Kumar (with M. Desai), ed., *Cambridge Economic History of India*, II, 463-532, Cambridge University Press, Cambridge, 1982.
- Ward, M. and J. Devereux, "The Road Not Taken: Pre-Revolutionary Cuban Living Standards in Comparative Perspective," *Journal of Economic History*, 72, 104-132, 2012.
- Whitwell, G., Ch. de Souza, and S. Nicholas, "Height, Health, and Economic Growth in Australia," in R.H. Steckel and R. Floud, eds., *Health and Welfare during Industrialization*, 379-422, University of Chicago Press, Chicago, 1997.
- World Bank, "World Development Indicators Database," World Bank, Washington D.C., 2010., <http://data.worldbank.org/data-catalog>



Leandro Prados de la Escosura
Índice de Desarrollo Humano Aumentado

Rafael Calvo, 39
28010 Madrid
Spain

T (+34) 91 396 86 00
info@frdelpino.es
www.frdelpino.es

