

## **Technical appendix of the book « Capital and ideology »**

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<http://piketty.pse.ens.fr/files/AppendixKIdeology.pdf>

In order to ease the reading of the book “Capital and ideology” and not to overwhelm the reader with footnotes, I have decided to include in this technical appendix the detailed presentation of historical sources, bibliographic references, statistical methods and mathematical models used in the book, including the presentation of the statistical series used in order to construct the figures and the tables presented in the different chapters

This appendix also includes additional figures and tables that are mentioned in the book (although not incorporated in it, so as to limit its volume), as well as Internet links to all the series, excel files, programs, formulas, primary sources and technical studies used as bedrock of this book.

Like all statistics, the data series and other quantitative estimates presented in this book and in this appendix are imperfect, provisional and fragile. They do not aim to establish “the” truth of numbers: they attempt to develop a language that can be used to set orders of magnitudes and to compare in the most meaningful way epochs, countries and cultures that are by definition very far apart. I try to conduct these comparisons in the most transparent and justified manner, but I do not pretend that the data series that are presented here should be viewed as final. I thank in advance all readers who will transmit their remarks and suggestions.

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This technical appendix also includes a set of data files in xls format including for each chapter an xls file with all figures, tables and series used in this chapter. These xls files are available [in zip format](#), or by browsing [into this directory](#).

One can also access all figures and tables by browsing into the following directories :

- [Figures and tables \(pdf\)](#) or [\(png\)](#) or [\(xls\)](#) or [Presentation slides \(ppt\)](#)
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All files are also available [in a single zip file](#).

## Main references

« Capital and ideology » is based upon a large number of research works that were conducted with many coauthors (see the acknowledgment page at the beginning of the book). The main references and links are provided here. Supplementary documents (including databases, technical appendices, presentation slides, etc.) are available on my [personal page](#) (in particular in [publications](#) and [recent work](#)).

Generally speaking, « Capital and ideology » stands in the continuation of the following works, to which I frequently refer to in the book:

T. Piketty, [Les Hauts revenus en France au 20e century : inégalités and redistribution, 1901-1998](#), Ed. Grasset, 2001. English translation: [Harvard University Press 2018](#)

A.B. Atkinson, T. Piketty (eds.), [Top incomes over the twentieth century : a contrast between continental european and english-speaking countries](#), Oxford University Press, 2007

A.B. Atkinson, T. Piketty (eds.), [Top incomes: a global perspective](#), Oxford University Press, 2010

T. Piketty, [Le capital au 21<sup>e</sup> century](#), Ed. du Seuil, 2013  
([Capital in the 21<sup>st</sup> century](#), Harvard University Press, 2014)  
([data series, figures and appendix](#))

F. Alvaredo, L. Chancel, T. Piketty, E. Saez, G. Zucman, [World Inequality Report 2018](#) ([Online version, Appendix](#)) (Harvard University Press, 2018) ([Rapport sur les inégalités mondiales](#), Ed. du Seuil, 2018)

F. Alvaredo, L. Chancel, T. Piketty, E. Saez, G. Zucman (with the participation of over 100 scholars), [World Inequality Database](#) ([WID.world](#)), 2011-2019

M. Bouju, L. Chancel, A.L. Delatte, S. Hennette, T. Piketty, G. Sacriste, A. Vauchez, [Changer l'Europe, c'est possible](#), Ed. du Seuil, 2019  
(the « Manifesto for the democratization of Europe », the treaty project as well as number of other documents are available at [www.tdem.eu](#))

« Capital and ideology » is also based upon a number of research articles. In « Capital in the 21st century », I was particularly using the following research articles, written and published between 2001 and 2014. These articles also play an important role in my new book :

T. Piketty, [Income Inequality in France, 1901-1998](#), Journal of Political Economy, 2003

T. Piketty, E. Saez, [Income Inequality in the United States, 1913-1998](#), Quarterly Journal of Economics, 2003

A. Banerjee, T. Piketty, [Top Indian Incomes, 1922-2000](#), World Bank Economic Review, 2005

T. Piketty, G. Postel-Vinay, J.L. Rosenthal, [Wealth Concentration in a Developing Economy: Paris and France, 1807-1994](#), American Economic Review, 2006

T. Piketty, N. Qian, [Income Inequality and Progressive Income Taxation in India and China, 1986-2015](#), American Economic Journal: Applied Economics, 2009

T. Piketty, [On the Long-Run Evolution of Inheritance: France 1820-2050](#), Quarterly Journal of Economics, 2011 ([version longue and database](#))

A. Atkinson, T. Piketty, E. Saez, [Top Incomes in the Long Run of History](#), Journal of Economic Literature, 2011

T. Piketty, E. Saez, [Optimal Labor Income Taxation](#), Handbook of Public Economics, volume 5, chapter 7, 2013.

T. Piketty, E. Saez, [A Theory of Optimal Inheritance Taxation](#), Econometrica, 2013

T. Piketty, G. Postel-Vinay, J.L. Rosenthal, [Inherited vs. Self-Made Wealth: Theory and Evidence from a Rentier Society \(Paris 1872-1937\)](#), Explorations in Economic History, 2014 ([WP](#))

T. Piketty, G. Zucman, [Capital is Back: Wealth-Income Ratios in Rich Countries, 1700-2010](#), Quarterly Journal of Economics, 2014 ([séries de données and version longue](#))

T. Piketty, E. Saez, S. Stantcheva, [Optimal Taxation of Top Labor Incomes: A Tale of Three Elasticities](#), American Economic Journal: Economic Policy, 2014

Finally, “Capital and ideology” is based also and mostly upon new research articles realized between 2014 and 2019 :

L. Chancel, T. Piketty, [Carbon and Inequality: from Kyoto to Paris](#), WID.world WP, 2015

F. Alvaredo, T. Atkinson, L. Chancel, T. Piketty, E. Saez, G. Zucman, [Distributional National Accounts \(DINA\) Guidelines: Concepts and Methods used in WID.world](#), WID.world WP, 2016

F. Alvaredo, B. Garbinti, T. Piketty, [On the share of inheritance in aggregate wealth: Europe and the USA, 1900-2010](#), Economica, 2017

F. Alvaredo, L. Chancel, T. Piketty, E. Saez, G. Zucman, [Global Inequality Dynamics: New Evidence from WID.world](#), American Economic Review, 2017 ([WID.world WP](#))

B. Garbinti, J. Goupille-Lebret, T. Piketty, [Accounting for Wealth Inequality Dynamics: Methods, Estimates and Simulations for France \(1800-2014\)](#), WID.world WP, 2017

T. Blanchet, J. Fournier, T. Piketty, [Generalized Pareto Curves: Theory and Applications](#) , WID.world WP 2017 ([Gpinter: Online Tools and Computer Codes](#))

T. Piketty, E. Saez, G. Zucman, [Distributional National Accounts: Methods and Estimates for the United States](#), Quarterly Journal of Economics, 2018 ([WID.world WP](#))

B. Garbinti, J. Goupille-Lebret, T. Piketty, [Income Inequality in France 1900-2014: Evidence from Distributional National Accounts \(DINA\)](#), Journal of Public Economics, 2018 ([WID.world WP](#))

F. Novokmet, T. Piketty, G. Zucman, [From Soviets to Oligarchs: Inequality and Property in Russia 1905-2016](#), Journal of Economic Inequality, 2018 ([WID.world WP](#))

F. Alvaredo, L. Chancel, T. Piketty, E. Saez, G. Zucman, [The Elephant Curve of Global Inequality and Growth](#), AEA Papers and Proceedings, 2018 ([WID.world WP](#))

F. Novokmet, T. Piketty, L. Yang, G. Zucman, [From Communism to Capitalism: Private vs Public Property and Inequality in China and Russia](#) , AEA Papers and Proceedings, 2018 ([WID.world WP](#))

T. Piketty, G. Postel-Vinay, J.L. Rosenthal, [The End of Rentiers: Paris 1842-1957](#), WID.world WP, 2018

F. Alvaredo, D. Cogneau, T. Piketty, [Income Inequality under Colonial Rule: Evidence from French Algeria, Cameroon, Indochina and Tunisia, 1920-1960](#), WID.world 2018

A. Bozio, B. Garbinti, J. Goupille-Lebret, M. Guillot, T. Piketty, [Inequality and Redistribution in France 1990-2018: Evidence from Post-tax Distributive National Accounts \(DINA\)](#), WID.world WP, 2018

F. Alvaredo, L. Assouad, T. Piketty, [Measuring Inequality in the Middle East, 1990-2016: the World's Most Unequal Region?](#), Review of Income and Wealth, 2019 ([WID.world WP](#))

T. Piketty, E. Saez, G. Zucman, [Simplified Distributional National Accounts](#), AEA Papers and Proceedings, 2019, ([WID.world WP](#))

T. Piketty, L. Yang, G. Zucman, [Capital Accumulation, Private Property and Rising Inequality in China, 1978-2015](#), American Economic Review, 2019 ([WID.world WP](#))

L. Chancel, T. Piketty, [Indian Income Inequality, 1922-2015: from British Raj to Billionaire Raj?](#) , Review of Income and Wealth, 2019 ([WID.world WP](#))

T. Piketty, [Brahmin Left vs Merchant Right: Rising Inequality and the Changing Structure of Political Conflict. Evidence from France, Britain and the US 1948-2017](#), WID.world WP, 2018 ([Data Appendix](#))

A. Banerjee, A. Gethin, T. Piketty, [Growing Cleavages in India? Evidence from the Changing Structure of Electorates 1962-2014](#), Economic and Political Weekly, 2019 ([WID.world WP](#)) ([Data Appendix](#))

A. Gethin, C. Martinez-Tolenado, T. Piketty, [Political Cleavages and Inequality. Evidence from Electoral Democracies 1950-2018](#), WID.world, 2019

## **Appendix to the introduction**

All details on data series, sources and works used to construct the figures presented in the introduction are available [in the corresponding excel file](#).

Figures 0.1 and 0.2 rely in part on the works of Maddison and those published within the project « How was life ? Global well-being since 1820 » (OECD 2014). Figures 0.3 to 0.7 rely on the [World Inequality Report 2018](#) and on the database [WID.world](#). See also [Global Inequality Dynamics: New Evidence from WID.world](#), American Economic Review 2017, and [The Elephant Curve of Global Inequality and Growth](#), AEA Papers and Proceedings 2018. Figure 0.8 uses estimates realized within the project « Equality of opportunity » (coordinated by R. Chetty and E. Saez). Figure 0.9 comes from my article [Brahmin Left vs Merchant Right](#) (WID.world 2018) (all data sources and computer codes used to construct these results are [available here](#)).

### **Appendix to chapter 1**

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The data sources on France and Spain are presented in a more detailed manner in chapters 2 and 5. Those on India are analyzed in chapter 8. See the appendices and excel files related to these chapters.



## Appendix to chapter 2

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The data series reported on Figure 2.1 and Tables 2.1-2.2 are partly based upon the works of Nassiet and Contamine (see also the references given by [Deweever 2017](#)). As I explain in the book, one should emphasize the major uncertainties surrounding these estimates. In particular, the information coming from the sources on *listes de bans and arrière-bans* and *rôles de capitation* exploited by Nassiet and Contamine make it possible to establish trends (and in practice a downward trend in the size the nobility, expressed as percent of total population), but leave major uncertainties about the levels. Depending on the estimates, the size of nobility can vary from 1% to 2.5% of total adult population around 1600, and from 0.3% to 1.5% around 1785. On the maximal amplitude of estimates, see [Dauvergne 1973](#) (also referred to by [Deweever 2017](#)). See also [Nassiet 1999](#). Among the many estimates realized in the 18th century, see that of [Expilly 1780](#). See also the brochure « Qu'est-ce-que le Tiers Etat ? » by [Siéyès 1789](#).

All details are in the excel file, similarly as for the clergy estimates. On the history of French censuses since the early 19th century (regular censuses begin in 1801 and include individual records with age and occupation beginning in 1851), see A. Desrosières « Eléments pour l'histoire des catégories socioprofessionnelles », in *Pour une histoire de la statistique*, INSEE 1977 (Economica 1987), p.200-222 (reproduction of raw occupational tables from 1872-1968 censuses). On the censuses in France before 1856, see [Legoyt 1860](#). See also O. Marchand, C. Thélot, *Le travail en France (1800-2000)*, Nathan 1997. On the information on religion available in 19th censuses, see [Poulard 1956](#).

Data used for Figure 2.2 come from the work conducted with G. Postel-Vinay and J.L. Rosenthal on Parisian and French inheritance archives (see in particular the article [Wealth Concentration in a Developing Economy: Paris and France, 1807-1994](#), *American Economic Review*, 2006). The estimate for 1780 was realized by using available estimates regarding the decline of the share of the nobility in landed estates between 1780 and 1810.

Regarding this decline, see in particular the estimates by Goubert and Soboul (published in Braudel-Labrousse, *Histoire économique et sociale de la France*, 1970-1976), which themselves pursue a long research tradition (see especially Bloch 1900). All details are in the excel file. See also [Finley and al 2017](#) about the fact that the redistribution of clergy land might have had a positive impact on agricultural productivity. Identification is conducted at the département level, by exploiting the large variations between départements regarding the size of the clergy and hence the magnitude of the redistribution (the identification is not fully convincing but is interesting).

Data used for Figure 2.3 come in particular from the work on the changing structure of national wealth conducted with G. Zucman ([see database here](#)). On the role of church property in 18th century Spain, see the PhD thesis by [Milhaud 2018](#). On the evolution of the structure of property in France since the late 19th century, see the works realized by [Artola, Baulusz and Martinez-Toledano 2018](#).

#### Population growth in Western Europe 1000-1800

The figures I refer to come from the [works of Maddison](#). On the fall of western European population between 1347 and 1352, see also M. Arnoux, *Le temps des laboureurs*, p.9-15. Population comparisons for France, Britain and the US also rely on Maddison, as well as on the British demographic series put together by Mitchell (see [excel file for chapter 5](#)), which are consistent with Maddison. See also the population series in the [database](#) collected with G. Zucman (see in particular tables US2 and US3b).

#### Share of nobility in the hiring of bishops

The share of nobility in higher clergy appears to rise from 60-65% to over 95% during the 17<sup>th</sup> and 18<sup>th</sup> centuries. See Cassan, Haddad, Muchnik, Tuttle, *Les sociétés anglaises, espagnoles et françaises au 17<sup>e</sup> century*, 2007, p.99-100. See also Lukowski, *The European nobility in the 18<sup>th</sup> century*, 2003, p.9.

#### Milliard des émigrés

The national income of France can be estimated to about 7,5 billions francs in the 1820s. See [database Piketty-Zucman](#) (tables FR1-FR2).

### **Appendix to chapter 3**

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The reference to the tax schedule proposed by Graslin 1767 comes from p.199 (pdf) (p.292-293 of the original edition) ([version Gallica](#)). The brochure « Du droit national d'hérédité » from Lacoste 1792 is [available here](#). On these issues, see also the works by Gross which I refer to in the book (especially [Gross 1993](#)).

The reference to Condorcet 1794 (book published after his death in 1795) comes from p.340 (pdf p.350) ([version Gallica](#)).

#### **Reference to the marxist and antimarxist historians of the French Revolution**

For representative examples of the two books, see A. Soboul, *la Révolution française*, Gallimard, 1982 (updated version of his *Précis d'histoire de la Révolution française* published in 1962, and discussed by C. Mazauric) and F. Furet, *Penser la Révolution française*, Folio Histoire, 1978 (synthesis using material from *la Révolution française*, with D. Richet, 1965).

#### **Appendix to chapter 4**

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

Data used in Figures 4.1 to 4.3 and du Table 4.1 come from the work conducted with G. Postel-Vinay and J.L. Rosenthal in Parisian and French inheritance archives (see in particular the article [Wealth Concentration in a Developing Economy: Paris and France, 1807-1994](#), American Economic Review, 2006, as well as the article [Inherited vs. Self-Made Wealth: Theory and Evidence from a Rentier Society \(Paris 1872-1937\)](#), Explorations in Economic History, 2014). Parisian inheritance registers have been well preserved since 1802-1803, and we collected the data for all deceased individuals in 1807, 1812, 1817, and every five years until 1962. For recent decades, I used the estimates constructed with B. Garbinti and J. Goupille-Lebret (see [Accounting for Wealth Inequality Dynamics: Methods, Estimates and Simulations for France \(1800-2014\)](#), WID.world WP, 2017).

The evolution of inheritance tax schedules during the 19<sup>th</sup> century was analyzed by A. Daumard, Les fortunes françaises au 19<sup>e</sup> century, 1973, as well as in my book [Les hauts revenus en France au 20<sup>e</sup> century](#), 2001 (see in particular [Appendix J](#)). See also the very interesting article « Les successions and les donations depuis 1826 » (BSLC, mai 1884, Gallica).

## Appendix to chapter 5

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

Data on the size of the clergy and the nobility used for Figures 5.1-5.2 come from the works of multiple authors (in particular Bengtsson, Lindert, Williamson, Bush, Doggan and Lukowski). See especially the works by [Bengtsson and al 2017](#) on Sweden and [Lindert-Williamson 1982](#) and [1983](#) for Britain.

On France, the numbers of voters and eligible voters during the 1815-1848 period used on Figure 5.3 come from J. Godechot, *Les constitutions de the France depuis 1789*, Flammarion 1979 (updated version 1995), p.215-216. The data on the distribution of wealth and income used for Figures 5.4 to 5.7 come from the works of Alvaredo, Atkinson and Morelli for Britain (see en particulier [Top Wealth Shares in the UK over more than a Century](#), WID.world 2017) and Roine-Waldenstrom for Sweden. All details are in the excel file.

On the Burke almanachs, see especially the editions of [1838](#), 1845 ([vol.1](#) and [vol.2](#)) and [1914](#).

The *Annuaire de the noblesse française* of 1872 is [available here](#). See also the editions for [1843](#) and [1937-1938](#) (last published version). See the article published by [Becarud 1973](#) on the evolution of the nobility among members of parliament.

On the trifunctional and hyper-proprietarian Swedish society, see the works by Bengtsson, and in particular [Wealth Inequality in Sweden 1750-1900](#), Economic History Review 2017, and [The Swedish Sonderweg in Question: Democratization and Inequality in Comparative Perspective, c. 1750–1920](#), Past and Present 2019. On the various censitary and electoral systems used in Nordic countries, see B. Grofman, A. Lijphart, *The Evolution of electoral and party systems in the Nordic countries*, 2002.

## Appendix to chapter 6

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The data used for Figures 6.1, 6.2 and 6.4 come from multiple works on the history of slavery, in particular those of Blackburn, Lovejoy and Nunn. The data used for Figure 6.4 and Table 6.1 come from US censuses. See also [Nunn 2008](#) and the corresponding database. All details are in the excel file.

On the evolution of number of slaves in French slave islands, see the works by [Moreau 1842](#).

On the case of Saint-Domingue/Haïti and the repayment of the debt of 1825, see the synthesis realized by [Henochsberg 2016](#) (who uses in particular the previous works by Bullmer-Thomas).

For a global estimates of African slave trade, see for instance C. Coquery-Vidrovitch, *Les routes de l'esclavage. Histoire des traites africaines, 6<sup>e</sup>-20<sup>e</sup> centuries*, Albin Michel 2018, p.33-39. The author estimates total African slave trade to be around 22 millions slaves (12 for Atlantic trade, 6 for transsharian trade and 4 for trade toward the Indian ocean). She also makes clear that these numbers are very uncertain and must probably be multiplied by two in order to take into account the death toll related to the wars and transportation processes involved in slave trade.

On the strong uncertainty regarding the estimates on ancient slavery, see for instance J.Hecht, « L'idée de dénombrement jusqu'à the Révolution », in *Pour une histoire de la statistique*, INSEE 1977 (Economica 1987), p.29, who refers to the results of a census conducted in Greece (Attique) in 310 AEC indicating 120 000 free people and 400 000 slaves (thereby suggesting a much bigger slave proportion than what is usually believed for the urban Greek world).

On the magnitude of slavery in Sokoto's Caliphate and in West Africa (Sénégal, Guinée, Niger), see Lovejoy, *Jihad in West Africa during the Age of Revolutions*, 2016, p.106 table 4.1 and table A1 p.261.

On the number of slaves in Portugal and Morocco during the 15<sup>th</sup>-16<sup>th</sup> centuries (about 10-15% of the population) and on the gradual abolition in Portugal during the 17<sup>th</sup>-18<sup>th</sup> centuries, see C. Coquery-Vidrovitch, 2018, p.82-84.

On slave revolts, and in particular on the repression in Guadeloupe in 1802, see C. Coquery-Vidrovitch, 2018, p.189-190. See also L.R. Abénon, « Les révoltes serviles to the Guadeloupe au début de the Révolution (1789-1793) », in M. Doriginy ed., *Esclavage, résistances and abolitions*, 1999, p.209-216.

On the British abolition-compensation, see the individual database released within the auspices of the LBS database (<https://www.ucl.ac.uk/lbs/>). The basic database includes about 4000 plantations (estates). By going through the history of these plantations until 1763, one can identify about 20000 slave owners in relation to these plantations.

On British national income in 1830 and 1840 (between 390 and 520 millions pounds), see the [database](#) collected with avec G. Zucman (table UK2). The compensation of 20 millions pounds therefore represents about 4%-5% of national income.

According to Draper in Hall and al, *Legacies of British Slave-Ownership: Colonial Slavery and the Formation of Victorian Britain*, 2014 p.35, one can identify about 3000 slave owners residing in Britain (*absentee landlords*) who received about half of total compensation. Le travail de recoupement avec les autres membres des familles ayant reçus des compensations est toujours en cours. Dans tous les cas, les estimations de compensation moyenne reçue sont extrêmement élevées.

Pour une estimation du nombre total d'esclaves émancipés (environ 656 000, hors Mauritius and Cape colony), see also Draper, *The Price of Emancipation: Slave-Ownership, Compensation and British Society at the End of Slavery*, 2010 Table 4.1 p.139. Cette estimation est cohérente avec [Nunn 2008](#) and les autres sources. Par contre, Coquery 2018 p.233 évoque un chiffre environ deux fois plus faibles.

Sur le discours de Lamartine sur les compensations, See Tin, *Esclavage and réparations*, 2013, p.23. Sur les indemnités versées en 1848, see le rapport Cochin 1861 cité par C. Oudin-Bastide, P. Steiner, *Calcul and morale*, 2015, p.130-133. See also C. Coquery-Vidrovitch, 2018, p.235-236. See aussi Schmidt, *the France a-t-elle aboli l'esclavage ?*, 2009, p.182 (citant un rapport de Fisher-Blanchet).

Sur the déportation des Mexicains-Américains, les estimations vont de 500 000 to 2 millions, the plupart entre 1 and 1,5 millions (dont 60% ayant the nationalité américaine). See Balderrama, *Decade of Betrayal: Mexican Repatriation in the 1930s*, 2006. See also A. Wagner, *America's Forgotten History of Illegal Deportations*, *The Atlantic*, 2017 (qui retient un estimation de 1,8 millions).

Sur les débats sur les compensations aux Etats-Unis, see W. Shade, *Democratizing the Old Dominion. Virginia and the Second Party System 1824-1861*, 1996, p.191-193. Les estimations de Jefferson 1814 font état d'une compensation de 36 millions de dollars pendant 25 ans, soit 900 million de dollars. Madison en 1819 propose une évaluation de 600 million de dollars. D'après the [database](#) collected with G. Zucman (table US2), le revenu national des Etats-Unis se situait autour de 500 millions de dollars en 1810 and de 800 millions de dollars en 1820. Donc dans les deux cas les compensations évoquées se situent autour d'une année de revenu national.

Sur les données sur le métissage au Brésil, see Benassar-Marin, *Histoire du Brésil*, 2014, p.628-629.



## Appendix to chapter 7

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The data used for Figure 7.1 on European populations in various colonial societies come in particular from the work of [Cogneau and al 2018](#) and [Etemad 2007](#) (see also [Etemad 2012](#)) and on the work by [Atkinson-Alvaredo 2010](#) on South Africa. S'agissant de l'empire français, l'estimation de Cogneau and al 2018 de 95 millions d'habitants porte sur 1955 and est peu différente pour 1938 (elle n'inclut pas les protectorats au Liban and en Syrie). Les estimations pour les empires britanniques and néerlandais sont principalement issues d'Etemad. Les populations européennes résidant to Alger and Oran en 1954 come from [Despois 1956](#).

The data used for Figures 7.2 to 7.7 on income inequalities in colonial societies come from multiple works, especially Alvaredo-Cogneau-Piketty 2018 ([Income Inequality under Colonial Rule: Evidence from French Algeria, Cameroon, Indochina and Tunisia, 1920-1960](#)), Govind 2018 ([Post-colonial inequality trends: From the « Four Old Colonies » to Overseas Departments of France](#)), as well as [Atkinson-Alvaredo 2010](#) for South Africa and Atkinson [2015a](#), [2015b](#) and [2015c](#) on British colonies in Africa. Il faut souligner que the plupart des données fiscales de the période coloniale sont limitées au sommet de the distribution : elles permettent généralement d'estimer the part du centile ou du millime supérieur dans le revenu total, mais elles sont le plus souvent insuffisantes pour estimer the part du décile supérieur. Les estimations indiquées ici pour les parts du décile supérieur ont donc été estimées sur the base de situations similaires (comme par exemple le cas de l'Afrique du Sud to the fin de l'Apartheid and au cours des dernières décennies, où l'on dispose de données suffisantes pour estimer les parts du décile supérieur comme du centile and millime supérieurs, ou encore pour le cas de the Réunion depuis les années 1960). Ces estimations valent donc surtout pour les ordres de grandeur obtenus.

The data on educational colonial budgets in Algeria used on Figure 7.8 come from [Cogneau and al 2018](#). The data on foreign assets used on Figure 7.9 come from the [database](#) collected with G. Zucman and from WID.world updates. All details are in the excel file. On foreign assets, see also Capital in the 21<sup>st</sup> century, 2014, chapters 3-4. Précisons que les séries indiquées sur le Figure 7.9 dans le cas de l'Allemagne ne prennent pas en compte les dettes établies par le Traité de Versailles (plus de 300% du revenu national allemand des années 1920 : see the [database](#) collected with G.

Zucman, Table DE6.b). the dette de Versailles sera finalement ramenée de 132 billions de DM to 5 billions de DM lors de the conférence de Lausanne en 1932, après que the crise de 1929 ait rendu totalement improbable le repaiement (see chapter 10 pour une discussion plus détaillée de cette question).

Regarding racial inequalities in South Africa, available estimates suggest that the share of Blacks in the top 1% was less than 0,1% in the 1950s and 1960s, 0,2%-0,4% in the 1970s and 1980s, up to 1% in 1985-1987, when these fiscal data series stop (see [Atkinson-Alvaredo 2010](#), Table A9). Survey data exploited by [Morival 2011](#) report a share of 18% for Blacks in the top 1% in 1995, followed by a decline to about 15% between 1995 and 2010.

Concernant les populations amérindiennes au Mexique and en Amérique du Nord, il faut insister sur les grandes variations entre les différentes estimations (celles citées dans le chapter 7 correspondent to des estimations moyennes). En particulier, il existe d'immenses incertitudes sur le cas Mexique : the population estimée autour de 1520 va de 5-10 millions to 25-30 millions ; les estimations les plus communes vont de 15 to 20 millions en 1520, and entre 1 and 2 millions en 1600 (à un moment où les populations d'origine européenne and africaine restent inférieures to 100 000 habitants, mais où le processus de métissage est déjà bien en place). Sur le cas du Mexique, see R. McCaa, « The Peopling of Mexico from Origins to Revolution », in M. Haines, R. Steckel, A Population History of North America, CUP 2000. McCaa estime environ un quart de population métissée 1650 and autour de 40% en 1820. Sur l'Amérique du Nord, les estimations les plus reconnues actuellement vont de 5 to 10 millions to l'arrivée des Européens au nord du Rio grande (environ 5 millions sur le territoire des Etats-Unis and 2 millions sur territoire du Canada), puis un chute to environ 0,4-0,5 millions vers 1900 (et une légère remontée depuis lors). See notamment R. Thornton, « Native American Demographic and Tribal Survival into the Twenty-first Century», American Studies, 2005

Sur le cas marocain de coercition coloniale par the dette publique, see les travaux de [Barbé 2016](#). Sur le cas chinois, see les travaux de [Truong-Loï 2015](#).

Pour des estimations de l'ampleur de l'extraction esclavagiste and coloniale au 18<sup>e</sup> century, see par exemple R. Blackburn, The Making of New World Slavery, 1997, p.503. D'après les estimations disponibles, vers 1790, the France reçoit environ 350 millions de livres tournois par an en biens de ses colonies, dont environ 100 millions d'extraction financière venant de Saint Domingue (sans même prendre en compte the

consommation des colons ; see [Henochsberg 2016](#), appendix table E). D'après the [database](#) collected with G. Zucman (table FR2), le revenu national de the France était en 1790 autour 4,9 billions de livres tournois. Les 350 millions de livres tournois représentent donc environ 7% du revenu national (dont 2% pour the simple extraction financière en provenance d'Haïti). L'estimation de Blackburn ne correspond cependant pas to un profit net ; une estimation de de l'ordre de 200-250 millions de profit net est sans doute plus réaliste, compte tenu des estimations pour Saint-Domingue. Dans ce cas on serait plutôt autour de 5% du revenu national.

Regarding Britain, about 6 millions pounds seem to have been made in profits from the West Indies during the 1790s (Blackburn 1997 p.503). Toutefois cette estimation prend uniquement en compte les West Indies and non les autres colonies. D'après the [database](#) collected with G. Zucman (table UK2), le revenu national du Britain était d'environ 150-170 millions de livres de revenu national dans les années 1780 and 1790, d'où une extraction coloniale d'environ 4% du revenu national, ou peut-être plutôt 5% en intégrant les autres colonies (comme celles du Cape). Ces estimation sont imprécises mais apportent dans tous les cas des ordres de grandeur comparables au revenu net étranger allant to the France and au Britain en 1913.

Sur le fait qu'un apport en revenu étranger net d'environ 5% du revenu national dans the France de 1913 est équivalent to the production industrielle de l'Est du pays, see l'[Appendix technical](#) au Capital au 21<sup>e</sup> century, p.20-21. See also Le capital au 21<sup>e</sup> century, p.194-195. Sur l'indemnité de 1870-1871, see l'[Appendix technical](#) au Capital au 21<sup>e</sup> century, p.24.

Sur les excédents and déficits commerciaux du Britain and de the France au 19<sup>e</sup> century, see the discussion dans Le capital au 21<sup>e</sup> century, p.195, and dans l'[Appendix technical](#) au Capital au 21<sup>e</sup> century, p.21. En utilisant the [database](#) collected with G. Zucman (tables FR12b and UK12b), on obtient les résultats suivants : les exportations (nettes des importations) représentent +2,0% du revenu national en France en moyenne de 1820 to 1880 and -0,5% de 1880 to 1914. Sur ces deux mêmes périodes, les chiffres sont de +0,3% and -1,2% pour le Britain, and de +1,1% and -0,9% si l'on fait the moyenne sur l'ensemble France-Britain. Les excédents commerciaux observées de 1820 to 1880 permettraient par conséquent d'expliquer une position patrimoniale nette d'environ 60% du revenu national pour l'ensemble France-Britain en 1880, au lieu de 120% observé, donc environ the moitié du total (mais to peine un quart pour le Britain and les trois quarts pour the France). On notera qu'en retirant les 30% du revenu national repayés to l'Allemagne dans les années 1870, avec de très

forts excédents commerciaux, cela fait retomber l'excédent commercial moyen environ 1,5% sur 1820-1880. Il faut cependant souligner que ces statistiques commerciales sont extrêmement imprécises, and en particulier ne prennent pas bien en compte les flux de services, and en particulier les profits commerciaux britanniques sur le fret and les assurances.

On forced labour in French colonies in Africa, see the recent estimates by [Waijenburg 2018](#) referred to in chapter 7.

### **Appendix to chapter 8**

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

Population series used for Figure 8.1 come from UN projections (and from Maddison historical series). The data on religions and castes used for Figures 8.2 to 8.5 and Tables 8.1-8.2 come for the most part from the colonial censuses conducted between 1871 and 1941 and the censuses conducted in independent India between 1951 and 2011.

Detailed data series on castes, occupations, literacy rates, land holdings, etc., coming from colonial censuses are available in the sheets « Census1871 », « Census1881 », etc. of this [excel file](#). I collected these data in the volumes of census results published by the British colonial administration. The main volumes that I used are available [in this directory](#) (see for instance the results of the [census of 1871](#) or [that of 1911](#)). I have also collected [in this directory](#) several reports, books and brochures written by colonial administrators which I found particularly useful and which I referred to repeatedly on chapter 8 (in particular the book by [Nesfield 1885](#)).

The censuses conducted in independent India do not ask questions about upper caste identity, so I used for the 1962-2014 period the caste information coming from post-electoral surveys. These surveys were exploited in the article [Growing Cleavages in India](#) (WID.world 2019), which I used in a more systematic manner in chapter 16.

Data used for Figure 8.6 on the evolution of lower caste expenditures and incomes relatively to the rest of the population come in part from the work of N. Bharti, [Wealth Inequality, Class and Caste in India, 1961-2012](#) (WID.world 2018) (see also [long version](#) here). The data available for the period 1950-1970 should be interpreted with special care.

On the strong convergence between the incomes of SC-ST and the rest of the population between 1983 and 2005, see the works by [Hnatkovska and al 2012](#). On inequalities between castes, see also [Zacharias and al 2009](#).

On intermarriage rates between jatis in India, and a comparison with educational homogamy in India and France, see [Bharti 2018](#) p.43-49 (in particular figure 24 and

table 18). On intermarriage in India, see also [Chiplunkar-Weaver 2017](#) (figure 2) and [Ray and al 2017](#).

### **Appendix to chapter 9**

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The data on fiscal capacities used for Figures 9.1-9.2 largely come from the works of [Karaman-Pamuk 2010](#) (see also [Gennaioli-Voth 2017](#)). For China, I also used the works by Von Glahn, *The Economic History of China*, 2016 (see also [Sng-Moriguchi 2014](#), [Dincecco 2015](#) and [Hoffman 2012](#), table 3).

The data on current military expenditures come from the [World Bank](#). The counting of military conflicts in 16<sup>th</sup>-20<sup>th</sup> centuries Europe is due to Tilly 1990 (quoted by [Gennaioli-Voth 2017](#) Table 1).

The data on Japan used for Figure 9.3 have been established by G. Carré on the basis of Japanese censuses (see excel file).

## Appendix to chapter 10

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The data used for Figures 10.1 to 10.5 come from the [World Inequality Report 2018](#) and the database [WID.world](#). The data used for Figures 10.6-10.7 come from Garbinti, Goupille-Lebret and Piketty, [Income Inequality in France 1900-2014: Evidence from Distributional National Accounts \(DINA\)](#), Journal of Public Economics, 2018 ([WID.world WP](#)). The data used for Figures 10.8-10.9 come from the [database](#) collected with G. Zucman and from WID.world updates. The data used for Figures 10.10-10.12 and 10.14-10.15 are updates from similar series used in Capital in the 21<sup>st</sup> century and in the [World Inequality Report 2018](#). Data series used for Figure 10.13 come from Piketty, Saez and Zucman, [Distributional National Accounts: Methods and Estimates for the United States](#), Quarterly Journal of Economics, 2018 ([WID.world WP](#)) (updates [available here](#)). Population data used for Figure 8.1 come from UN projections (and from Maddison historical series).

Regarding the reduction of German debts in 1948-1953, one should make clear that it is very difficult to estimate precisely the amount of the debt cancellation that was decided in 1953/ Official estimates refer to 15 billions marks, i.e. about 10% of German national income of 1953 (see the [database](#) collected with G. Zucman, table DE1). But these amounts put together interwar debts (including a small share of the Versailles treaty 132 billions marks-or debt that was almost entirely written off in 1932), debts accumulated by the Nazi regime to pay for various deliveries during the war, as well as postwar Anglo-US credit aimed to favour reconstruction. In addition to the cancellations, it was decided that certain debts would be partly repaid depending on future trade surpluses (without exceeding 3% of these surpluses). Depending on the hypothesis that are made to value these different amounts, one can obtain total estimates ranging from 50% to 100% of the German national income of 1953. For detailed references, see [Piketty-Zucman 2013](#), p.91-93, and [Galofre-Vila and al EREH 2018](#). See also *Le capital au 21<sup>e</sup> siècle*, 2013, p.891-892.

Regarding federal tax revenues in the US from 1800 to 1970, the most complete source can be found in the Historical Statistics of the US, Bicentennial Edition, 1976, Part 2, p.1106-107. If one compares these levels to the national income series from [database](#) collected with G. Zucman (table US1-US2), one obtains the following results. In 1800: 10 millions \$ in federal tax revenues (including 9 millions in tariffs), vs 400 millions in



national income (i.e. 2,5%). In 1850 : 40 millions in tax revenues (incl. 39 millions in tariffs), 2,4 billions in national income (i.e. 1,5%). In 1910 : 620 millions (incl. 330 millions in tariffs) vs 28 billions (i.e. 2%). 1920 : 6 billions (dont 300 millions), vs 78 billions (i.e. 8%). 1930 : 4 billions (dont 600 millions), vs 83 billions (i.e. 5%). 1940 : 5,5 billions vs 91 billions (i.e. 6%). 1950 : 39 billions vs 264 billions (i.e. 15%). 1960 : 92 billions vs 474 billions (i.e. 19%). 1970 : 196 billions vs 930 billions (i.e. 21%). 2019 : 3422 billions vs GDP 21 trillions and national income 18 trillions (i.e. 19%).

On the extension of suffrage in 1918-1919, see [Aidt and al 2006](#) (table 1).

On the rise of the fiscal state, one should stress that the primary deficit was close to zero on average over the 1970-2010 period in most rich countries (between 0% and 1% on average in Germany-France-US-Italy-Britain). See the [database](#) collected with G. Zucman, [Table A89](#) (see also [Table A112](#)).

Regarding the German debt coming from the Versailles treaty, see the [database](#) collected with G. Zucman (Table DE6.b) and [Piketty-Zucman 2013](#), p.91-93. The 132 billions in marks-or can be compared to the national income at the price of 1913, i.e. 52,4 billions mark-or in 1913 (252%), 35,8 in 1919 (368%), 40,1 in 1920 (322%) and 39,2 in 1923 (339%). On the French debt of 1870-1871, see the [technical appendix](#) to Capital in the 21<sup>st</sup> century, p.24. Note also that the Versailles treaty divided the debt into three tiers. Tier A debt, which was the only one that had to be repaid immediately, was comparable to the 1871 debt (about 30% of German national income). Tier B and C debt remained mostly theoretical, but played a central role in interwar debates.

The French edition (1934) of Mein Kampf (1926) which I used is [available here](#).

## Appendix to chapter 11

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

Data used for Figure 11.1 come from the [World Inequality Report 2018](#) and from the database [WID.world](#). The data used for Figures 11.2-11.10 and 11.12-11.19 largely come from Garbinti, Goupille-Lebret and Piketty, [Income Inequality in France 1900-2014: Evidence from Distributional National Accounts \(DINA\)](#), Journal of Public Economics, 2018 ([WID.world WP](#)), Piketty, Saez and Zucman, [Distributional National Accounts: Methods and Estimates for the United States](#), Quarterly Journal of Economics, 2018 ([WID.world WP](#)) (updates [available here](#)), Garbinti, Goupille-Lebret, Piketty, [Accounting for Wealth Inequality Dynamics: Methods, Estimates and Simulations for France \(1800-2014\)](#), WID.world WP 2017, and Bozio, Garbinti, Goupille-Lebret, Guillot and Piketty, [Inequality and Redistribution in France 1990-2018: Evidence from Post-tax Distributive National Accounts \(DINA\)](#), WID.world WP, 2018.

Data used for Figure 11.11 come from OECD Education at A Glance 2017 (Table B3.1b).

The data on employees seats in corporate boards come from the references indicated in chapter 11 and from the database [available here](#). About the debates around the Draft Fifth Company Law Directive, see for instance [Ebke 1997](#).

On the distribution of employment by firm size, see for instance INSEE 2018 Tables de l'économie française, and INSEE 2018, Les entreprises en France, édition 2017, p.28. In brief : France had in 2017 12% of self-employed, 21% of public sector wage earners, 67% of private sector wage earners, with the following distribution in terms of firm size: 21%-40%-26%-13% for firms with less than 10 wage earners, 10-250, 250-5000, 5000+.

On the evolution of primary, secondary and tertiary enrollment rates in the US and in Europe, the numbers come from [Lee-Lee 2016](#) (see in particular [this file](#)). On enrollment and graduation rates in higher education in the 2010s, see also OECD Education at a Glance 2017 (Table A1.2).

The quote of Tocqueville refers to [this edition](#) (p.42).

Data on tertiary education spending (vs total education spending) come from OECD Education at a Glance 2017 (Table B2.1).

Data on the link between parental income and access to university come from Chetty-Saez and al [QJE 2014](#), [AER PP 2014](#), and [NBER WP 2017](#). For data on Denmark, see [Landerso-Heckman SJE 2017](#) and [Landerso-Heckman 2016](#) (Appendix Figure A18).

Regarding capital endowments in US universities, see Capital in the 21<sup>st</sup> century (Table 12.2). The average endowment of the 865 US universities is 407 millions de dollars, hence of total of 352 billions. The top 62 includes all endowments above 1 billion, for a total of 255 billions (72% of the total). With an average rate of return of 9.1% vs 8.2% on average over 30 years, this implies a share of about 55% on 1980. Data used for Shanghai university rankings are [available here](#).

The proposals made by Huey Long (1934) in his brochure « Share our wealth » are [available here](#). The main proposal is described on p.14, with a maximal wealth equal to 50 millions de \$, reduced if necessary to 10 millions de \$. As explained on p.1, the central objective is to allow everyone to own 5000\$, i.e. one third of average wealth according to Huey Long. As a matter of fact, Huey Long seems to overestimate somewhat the average wealth of the time. According to the [database](#) collected with G. Zucman (Table US1), average wealth was 6300\$ per adult in 1929 (hence 12600\$ for a couple), and only 3700\$ in 1934 (7400\$ for a couple). With his estimate of 15000\$ he is therefore even higher than 1929, which seems too high (even though the Piketty-Zucman series do not include durables).

## **Appendix to chapter 12**

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The data used for Figures 12.1-12.4 and 12.6-12.10 come from the [World Inequality Report 2018](#), from the database [WID.world](#), and more precisely from the following works : Novokmet-Piketty-Zucman, [From Soviets to Oligarchs: Inequality and Property in Russia 1905-2016](#), Journal of Economic Inequality, 2018 ([WID.world WP](#)) ; Novokmet-Piketty-Yang-Zucman, [From Communism to Capitalism: Private vs Public Property and Inequality in China and Russia](#) , AEA Papers and Proceedings, 2018 ([WID.world WP](#)); Piketty-Yang- Zucman, [Capital Accumulation, Private Property and Rising Inequality in China, 1978-2015](#), American Economic Review, 2019 ([WID.world WP](#)). Data used for Figure 12.5. come from [Zucman 2014](#). Data used for Figure 12.8 also use [Blanchet-Chancel-Gethin 2019](#).

Regarding incarceration rates, the estimate of about 4% of total population in the Soviet Union in the 1950s (hence over 5% of adult population) comes from the works by J. Cadiot that I refer to in this chapter. For other countries, see [R. Walmsley](#), World Prison Population List, 11th edition, 2015. Incarceration rates expressed as percent of total population must be multiplied by 1.2-1.3 (depending on the country) in order to be expressed as a fraction of adult population.

### **Appendix to chapter 13**

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

Population series used for Figure 8.1 come from UN population projections (and from Maddison historical series). The data used for Figures 13.2-13.6 and 13.8-13.1 come from the [World Inequality Report 2018](#), the database [WID.world](#), and in particular from Alvaredo, Assouad and Piketty, [Measuring Inequality in the Middle East, 1990-2016: the World's Most Unequal Region?](#), Review of Income and Wealth, 2019 ([WID.world WP](#)). Data used for Figure 13.7 come from Chancel-Piketty, [Carbon and Inequality: from Kyoto to Paris](#), WID.world WP, 2015. Data used for Figure 13.11 come from Garbinti, Goupille-Lebret and Piketty, [Income Inequality in France 1900-2014: Evidence from Distributional National Accounts \(DINA\)](#), Journal of Public Economics, 2018 ([WID.world WP](#)). Data used for Figure 13.12 come from [Cagé-Gadenne 2018](#). Data used for Figures 13.13-13.14 come from the [database](#) collected with G. Zucman, from [Ferguson and al 2015](#) and from data released by central banks for recent years (see details on excel file).

Regarding the valuation of natural capital in national accounts, see the [technical appendix](#) of Capital in the 21<sup>st</sup> century, p.75. World Bank series on natural resources extractions are available [here](#) and [there](#) (see also [Lange and al 2018](#)). For an attempt to re-estimate wealth accounts for Canada by taking into accounts from 1970 onward all resources discovered in the following decades, see [Kahn 2017](#) « Valuation of Natural Capital. Evidence from Canada 1970-2011 ».

Regarding the total financial assets held in France and Germany (between 300% and 400% of national income in 1970, between 800% and 1000% in 2010), see Capital in the 21<sup>st</sup> century, [Figure S5.3](#) (see also [Figure S5.5](#) on the shares owned abroad). For the 2018 data, see the Euro Area Integrated economic and financial accounts (ECB): Total financial assets held by Euro area institutional sectors = 133 trillions euros = 1100% of GDP (11,7 trillions euros).

### **Appendix to chapter 14**

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The data used for Figures 14.1 to 14.20 and Table 14.1 all come from T. Piketty, [Brahmin Left vs Merchant Right: Rising Inequality and the Changing Structure of Political Conflict. Evidence from France, Britain and the US 1948-2017](#), WID.world WP, 2018. The raw files from post-electoral surveys and the computer codes that can be used to replicate all results are [available here](#).

The rates of non-registration on electoral registers in France 2012-2017 as a function of occupation are also [available here](#) (see Appendix Piketty2018AppendixFrance.xlsx, Table 2012.1).

The estimates of teachers' average wages as a function of the fraction of socially disadvantaged and advantaged children in the school realized by A. Benhenda are [available here](#).

### **Appendix to chapter 15**

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The data used for Figures 15.1 to 15.15 come from T. Piketty, [Brahmin Left vs Merchant Right: Rising Inequality and the Changing Structure of Political Conflict. Evidence from France, Britain and the US 1948-2017](#), WID.world WP, 2018. The raw files from post-electoral surveys and the computer codes that can be used to replicate all results are [available here](#).

The estimates constructed by C. Bonneau about the changing concentration of educational investment in the US are [available here](#).

The estimates on the changing correlation between income and wealth in France (decline at the top, given the rebound of inheritance come from Garbinti, Goupille-Lebret and Piketty, [Accounting for Wealth Inequality Dynamics: Methods, Estimates and Simulations for France \(1800-2014\)](#), WID.world WP 2017 (see Figures 10a-10c).

## **Appendix to chapter 16**

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

The data used for Figures 16.1 to 16.15 primarily come from the following works : T. Piketty, [Brahmin Left vs Merchant Right: Rising Inequality and the Changing Structure of Political Conflict. Evidence from France, Britain and the US 1948-2017](#), WID.world WP, 2018 ([Data Appendix](#)); A. Banerjee, A. Gethin, T. Piketty, [Growing Cleavages in India? Evidence from the Changing Structure of Electorates 1962-2014](#), Economic and Political Weekly, 2019 ([WID.world WP](#)); A. Gethin, C. Martinez-Tolenado, T. Piketty, [Political Cleavages and Inequality. Evidence from Electoral Democracies 1950-2018](#), WID.world, 2018. In addition, series on Germany and Sweden come from [Kosse-Piketty 2019](#) ; those on Poland come from [Lindner-Novokmet-Piketty-Zawisza 2019](#) ; those on Catalonia come from [Gethin-Martinez-Morgan 2019](#) ; and those on Brasil come from [Gethin 2018](#).

All materials related to the project of a treaty of democratization of Europe and of the corresponding budget are available on [www.tdem.eu](http://www.tdem.eu). The main treaties that are currently being applied (TUE, TFUE, statutes of the ECB, TSCG (budgetary treaty), treaty creating the ESM), as well as the project of *Pacte Finance-Climat* referred to in the chapter, are available in [this directory](#).



### Appendix to chapter 17

All details on the data series, sources and works used to construct the figures and tables presented in this chapter are available [in the corresponding excel file](#).

Data used for Figure 17.1 come from [Zuber 2003](#) (recently updated and extended to the US by [Bonneau 2019](#)). These data on the distribution of educational investment have been distributed into percentiles using the algorithm [gpinter](#).

One should stress that the numbers reported on Table 17.1 regarding the proposals for progressive tax schedules on property and income and the revenue estimates provided below should be viewed as highly approximate. The aim is to set possible orders of magnitude, not final numbers. These tax schedules aim to bring about 5% of national income in revenues for the progressive tax on property (annual property tax and inheritance tax) and about 45% of national income for the progressive tax on income (including all social contributions). These estimates might be relatively pessimistic in the first case, in the sense that applying these tax schedules to a broad wealth tax – close to national accounts – could in principle raise in the long term annual revenues between 5% and 10% of national income (assuming an excellent system of tax audit and information transmission, especially at the international level). In contrast, the estimates might be somewhat overoptimistic in the second case (with the proposed rates, tax revenues are likely to be in the range of 40% to 45% of national income).

#### Elements of revenue estimates regarding the progressive property tax

Private wealth is assumed to represent about 500%-600% of national income.

In high inequality countries (such as the US in the 2010s), the top 10% wealth share is as large as 70%-75% of total wealth (including about 40% for the top 1% and 20% for the top 0.1%).

The proposed tax schedule leads to effective tax rates of about 10% over the top 0.1% (over 100k, i.e. 100 times average wealth, noted k), 5% on the top 1% (except top 0,1%) (between 20k and 100k), 1% on the top 10% (except top 1%) (3k-20k) and 0,5% on bottom 90% (0-3k). Hence tax revenues of the order of  $0,5\% \times 30\% + 1\% \times 30\% + 5\% \times 20\% + 10\% \times 20\% = 0,15\% + 0,3\% + 1\% + 2\% = 3,45\%$  average tax rate on private wealth = about 15%-20% of national income.

In absolute terms, the annual tax revenues would therefore be in the immediate future much larger than the 5% of national income necessary to pay for the universal capital endowment. One must however take into account that such tax revenues would not last, given the large fall in wealth concentration that this policy will cause. Assume for instance that the top 1% wealth share falls to 15% (and the top 0.1% wealth share to 5%), to the benefit of the bottom 90%. Long term annual tax revenues would therefore be of the order of  $0,5\% \times 30\% + 1\% \times 30\% + 5\% \times 10\% + 10\% \times 5\% = 0,15\% + 0,3\% + 0,5\% + 0,5\% = 1,45\%$  average tax rate on private wealth = about 7%-8% of national income.

In less strongly unequal countries (like Europe in the 2010s), the top 10% wealth share is around 55% of total wealth (including about 25% for the top 1% and 10% for the top 0.1%). Hence tax revenues of the order of  $0,5\% \times 45\% + 1\% \times 30\% + 5\% \times 15\% + 10\% \times 10\% = 0,225\% + 0,3\% + 0,75\% + 0,1\% = 1,17\%$  average tax rate on private wealth = about 5%-6% of national income.

Here again, these short-term tax revenues will not be maintained permanently. Assume for instance that the top 1% wealth share falls to 12% (and the top 0.1% wealth share to 2%), to the benefit of the bottom 90%. Long term annual tax revenues would therefore be of the order of  $0,5\% \times 45\% + 1\% \times 30\% + 5\% \times 10\% + 10\% \times 2\% = 0,225\% + 0,3\% + 0,5\% + 0,2\% = 1,22\%$  average tax rate on private wealth = about 6%-7% of national income.

### Elements of revenue estimates regarding the progressive income tax

In high inequality countries (such as the US in the 2010s), the top 10% income share is about 50% of total income (including about 20% for the top 1%), vs 10% for the bottom 50% and 40% for middle 40%.

The proposed tax schedule leads to effective tax rates around 70% for the top 1% (10y+, i.e. over 10 times average income, noted y), 50% on the top 10% (except top 1%) (2,5y-10y), 35% on middle 40% (0,5y-2,5y), 10% on bottom 50% (0-0,5y)

Hence tax revenues of the order of :  $10\% \times 10\% + 35\% \times 40\% + 50\% \times 30\% + 70\% \times 20\% = 1\% + 14\% + 15\% + 14\% = 44\%$  of national income.

In less strongly unequal countries (like Europe in the 2010s), the top 10% income share is around 35% of total income (including about 10% for the top 1%), vs 20% for the bottom 50% and 45% for the middle 40%.

By applying the same reasoning, one obtains revenue estimates around 40% of national income.

#### Elements of cost estimates for the basic income scheme

Full amount : 60% of after-tax average adult income, i.e. 33% of du revenu moyen après impôt, soit 33% of pre-tax average adult income (given the 45% average income tax rate :  $60\% \times 55\% = 33\%$ ).

About 30% of the adult population receives the basic income, with average receipt of about 30% of after-tax average adult income, i.e. 16,5% of pre-tax average adult income, hence of total cost of about 5% of national income ( $30\% \times 16,5\% = 4,95\%$ ).

Several schedules are possible. The payment could gradually decline from 60% of after-tax average adult income for individuals with zero income and vanish at an income level between 0.5 and 1 time after-tax average adult income.

#### Data on the age profile of wealth

See [this article](#) (figure 5). On wealth concentration within each age group, see [Figure S11.18](#).