EQUALITY AND DEVELOPMENT:
A COMPARATIVE & HISTORICAL PERSPECTIVE 1800-2025

MARIE ANDREESCU MANUEL ARIAS-OSORIO
LUIS BAULUZ NITIN BHARTI PHILIPP BOTHE
PIERRE BRASSAC LUCAS CHANCEL MAURICIO DE ROSA
JONAS DIETRICH DIMA EL HARIRI MATTHEW FISHER-POST
IGNACIO FLORES VALENTINA GABRIELLI AMORY GETHIN
RICARDO GÓMEZ-CARRERA SEHYUN HONG
THANASAK JENMANA ROMAINE LOUBES
CLARA MARTÍNEZ-TOLEDANO ZHEXUN MO
CORNELIA MOHREN MARC MORGAN ROWAIDA MOSHRIF
STELLA MUTI THERESA NEEF GASTÓN NIEVAS
MORITZ ODERSKY THOMAS PIKETTY
ANNE-SOPHIE ROBILLIARD EMMANUEL SAEZ
ALICE SODANO ANMOL SOMANCHI LI YANG
GABRIEL ZUCMAN ÁLVARO ZUÑIGA-CORDERO

WORKING PAPER N°2025/25

OCTOBER 2025

WORLD INEQUALITY LAB

Equality and Development:
A Comparative & Historical Perspective 1800-2025

Marie Andreescu[1], Manuel Arias-Osorio[1], Luis Bauluz[2], Nitin Bharti[3], Philipp Bothe[1], Pierre Brassac[4], Lucas Chancel[5], Mauricio De Rosa[6], Jonas Dietrich[1], Dima El Hariri[1] Matthew Fisher-Post[1], Ignacio Flores[1], Valentina Gabrielli[1], Amory Gethin[7], Ricardo Gómez-Carrera[1], Sehyun Hong[1], Thanasak Jenmana[1], Romaine Loubes[1], Clara Martínez-Toledano[8], Zhexun Mo[9], Cornelia Mohren[1], Marc Morgan[10], Rowaida Moshrif[1], Stella Muti[1], Theresa Neef[1], Gastón Nievas[1], Moritz Odersky[1], Thomas Piketty[1], Anne-Sophie Robilliard[11], Emmanuel Saez[12], Alice Sodano[1], Anmol Somanchi[1], Li Yang[13], Gabriel Zucman[12], Álvaro Zuñiga-Cordero[14]

October 27, 2025

Abstract. This paper uses extended series on income and wealth inequality from the World Inequality Database (WID) covering all world regions over the 1800-2025 period, together with new series on hourly productivity and human capital expenditure, to revisit the relationship between equality and development, with a much broader comparative and historical perspective than previous studies. Over the long-run, we find a strong positive association between equality and productivity. Our proposed interpretation is that the rise of inclusive "social-democratic" institutions (including extended access to human capital, public services and democratic participation) led both to more equality and higher productivity, particularly in Western and Nordic Europe. We discuss the implications for future sustainable development strategies.

* All series used in this research are available online in the World Inequality Database (wid.world), together with a detailed replication package and online appendix including raw data sources, methods and codes.

[1]WIL (World Inequality Lab), PSE (Paris School of Economics). [2]WIL & CUNEF (Madrid). [3]WIL & UWA (Perth). [4]WIL & UC3M (Madrid). [5]WIL & Sciences Po (CRIS). [6]WIL & UdelaR (Montevideo). [7]WIL & World Bank. [8]WIL & Imperial College (London). [9]WIL & CUNY (NYC). [10]WIL & UNIGE (Geneva). [11]WIL & IRD. [12]WIL & UC Berkeley. [13]WIL & ZEW (Mannheim). [14]WIL & UNamur.

How to cite this working paper: Andreescu, M., Arias-Osorio, M., Bauluz, L., Bharti, N., Bothe, P., Brassac, P., Chancel, L. De Rosa, M., Dietrich, J., El Hariri, D., Fisher-Post, M., Flores, I., Gabrielli, J., Gethin, A., Gómez-Carrera, R., Hong, S., Jenmana, T., Loubes, R., Martínez-Toledano, C., Mo, Z., Mohren, C., Morgan, M., Moshrif, R., Muti, S., Neef, T., Nievas, G., Odersky, M., Piketty, T., Robilliard, A-S, Saez, E., Sodano, A., Somanchi, A., Yang, L., Zucman, G., Zuñiga-Cordero, Á., Equality and Development: A Comparative & Historical Perspective 1800-2025, World Inequality Lab Working Paper 2025/25

1. Introduction

What is the socially optimal level of income and wealth inequality for successful socioeconomic development? Which countries – if any – are closest to this optimum, and should current income and wealth scales be compressed or magnified? Economists and politicians, union activists and business leaders, and most importantly citizens from all countries and political persuasion, have been debating about these central questions for decades and centuries – and most likely will continue to do so for the decades and centuries to come.

From a purely theoretical perspective, there are good arguments going in both directions. On the one hand, more equality of income and wealth may have a positive impact on productivity through increased inclusiveness, that is via extended economic opportunities for all children and adults (education, health, housing, inheritance, etc.), irrespective of their social origins. In the presence of credit constraints, this inclusiveness effect likely leads to efficiency gains. On the other hand, more equality of income and wealth may negatively impact productivity due to a possible disincentive effect. In addition to these two socioeconomic arguments – inclusiveness vs incentives – excessive inequality can harm political and institutional stability and ultimately undermine socioeconomic development. At a purely theoretical level, there is broad agreement that all of these mechanisms are relevant, at least within certain ranges of inequality. For example, the inclusiveness mechanism is likely to be highly important when starting from a situation of extreme inequality, whereas the incentives mechanism probably becomes particularly relevant when starting from a situation of near-complete equality. The problem is that this does not tell us much about the intermediate inequality ranges and the concrete quantitative levels of income and wealth scales that are in the best interest of societies.

In this paper, we use the extended set of income and wealth inequality series from the World Inequality Database (WID) covering all world regions over the 1800-2025 period, together with recently constructed historical series on hourly productivity and human capital expenditure, to revisit the relationship between equality and development in the long-run, with a much broader comparative and historical perspective than previous studies. We find a strong positive association between equality and development. For instance, the ratio P99/P10 between the 99^{th} and the 10^{th} percentiles of the post-tax income distribution dropped from about 50 in 1910 to less than 5 in recent decades in Nordic Europe (Sweden, Denmark, Norway, Netherlands), and the ratio P99.9/P10

from about 150 to less than 10 - a fall by a factor of more than 10.[1] This clearly did not prevent these countries from becoming the most productive in the world, with higher hourly output than Western Europe or the US. More generally, we find that the world's most prosperous countries – in Western or Nordic Europe, North America/Oceania and East Asia – are also those that have gone through the largest inequality compression over the course of the 20th century. In contrast, we observe that world regions with little or no inequality compression over the course of the 20th centuries are generally characterized by sluggish productivity growth and uneven development (e.g. in Latin America, South & South-East Asia or Sub-Saharan Africa). While other explanations clearly also matter, such as the legacy of colonialism (which can be expected to have affected both productivity and inequality), it is plausible that excessive inequality itself contributed to this weak performance.

Our proposed interpretation of the long-run findings is that the rise of inclusive "social-democratic" institutions (characterized by rising public expenditure, labour rights, progressive taxation and democratic participation) led both to more equality and more prosperity, particularly in Western and Nordic Europe, and more generally in today's richest countries. In other words, we do not claim that compressing the income and wealth scales is a sufficient condition for prosperity. Productivity growth also requires many other institutional factors, including large and sustained investment in human capital (education and health), a decentralized economic system (for example social-democratic institutions rather than central planning and state socialism), and stable and pluralistic political institutions (for example electoral democracy rather than a single-party system). Assuming that these conditions are met, however, equality appears to have a positive residual association with growth, in addition to the effects of human capital investment. In particular, Nordic countries have become more productive than the US at the same time as they have become more egalitarian, despite lower levels of total human capital expenditure (public and private) compared to the US. Conversely, the post-1980 rebound of inequality observed in the US (and to a lesser extent in Europe) was not accompanied by faster but rather by slower productivity growth. Next, and more generally, the high inequality levels observed in many world regions - including Latin America, South and Southeast Asia and Sub-Saharan Africa - appear to be associated with comparatively lower productivity levels.

Given the very high collinearity between the explanatory variables and the long time lags through which their effects materialize, we fully recognize that it is difficult to

[1] We find similar orders of magnitude for other indicators. For example, the ratio T10/B50 between the average post-tax incomes of the top 10% and the bottom 50% dropped from about 15-20 to around 2.5-3, and the ratio T1/B50 dropped from around 60-80 to around 6-8.

disentangle all mechanisms at play. At a more modest level, our main claim is that the rise of inclusive social-democratic institutions and the historical movement toward equality and prosperity appear to have developed together. Within this broader historical process, the substantial compression of the income scale (by a factor of more than 10 in Nordic Europe) did not seem to hinder growth and may even have entailed a positive residual effect. Based on our results, we can rule out the possibility of a significant negative residual effect, at least over the inequality ranges observed in the past. This does not imply that the disincentive argument is irrelevant, only that over the covered period it seems to be more than compensated by other effects, including the inclusiveness effect.

Our paper is closely related to several strands of the economics and political science literature on inequality measurement, comparative development and long-run growth. First, our work stands in the direct continuation of the booming literature on historical and comparative inequality measurement. Over the past 25 years, a large literature has developed that construct long-run distributional series on income and wealth for all parts of the world. Following the pioneering work of Kuznets (1953) and Atkinson and Harrison (1978), this literature combines historical income tax data, inheritance records and probate registries with national accounts and household surveys. Thereby, it has been able to produce for many countries homogenous series going back to the late 19th or early 20th centuries for income inequality,[2] and in some cases going back to the late 18th or early 19th centuries for wealth inequality.[3] All resulting historical series have been made available in the World Inequality Database (WID) which is continuously extended and updated.[4] While these works have often been used in the public debate on inequality and have led to the publication of a number of large audience books,[5] the database as a whole has never been used systematically to reassess the relationship between equality and development from a comparative and historical perspective. This is what we do in the present paper, by combining an extended version of WID inequality series with new global historical series on productivity and human capital expenditure (Andreescu et al, 2025; Bharti et al, 2025).

[2] These works were initially centered on rich countries but were gradually extended to poor and emerging countries. See Piketty (2001, 2003), Piketty and Saez (2003), Banerjee and Piketty (2005), Atkinson and Piketty (2007, 2010), Novokmet, Piketty and Zucman (2018), Piketty, Saez and Zucman (2018), Garbinti et al (2018), Piketty, Yang and Zucman (2019), Chancel and Piketty (2021), Alvaredo et al (2021), Blanchet, Flores and Morgan (2022), Chancel et al (2022), Blanchet and Martínez-Toledano (2023), Martínez-Toledano (2023), Bozio et al (2024), Bharti et al (2024).
[3] See e.g. Piketty, Postel-Vinay and Rosenthal (2006) and Bengtsson et al (2015).
[4] The World Inequality Database (wid.world) was first created as the World Top Incomes Database (WTID) in 2011. It was later extended to cover all parts of the distribution (from bottom to the top) and to wealth distributions, and it was renamed as WID in 2017. It is being maintained by the World Inequality Lab (inequalitylab.world) thanks to an international network of over 200 researchers.
[5] See e.g. Piketty (2014, 2020, 2022), Saez and Zucman (2019) and Waldenstrom (2024).

Next, our work is closely related to the large literature on comparative development, welfare states and "varieties of capitalism" (see Esping-Andersen (1990), Hall and Soskice (2000) and the subsequent literature).[6] Many authors in this area have stressed that there exists a large diversity of institutions that can lead to successful economic development, including advanced welfare states with very compressed income scales, typically in Nordic Europe, which often appear at the very top of the productivity ladder. Our results are very much consistent with this literature. The main novelty is that we provide a global historical quantification of inequality compression and economic performance in Western and Nordic Europe in comparison to the rest of the world. One striking result is that the historical compression of the post-tax income scale in Nordic Europe (and to a lesser extent in Western Europe) is even larger than what one might have expected.

The present paper is also related to the econometric literature using cross-country regressions to study the relation between inequality and growth (Deininger and Squire, 1996; Forbes, 2000; Barro, 2000; Banerjee and Duflo, 2003). The main novelty is that we use a much broader set of historical and comparative series. While the previous literature used for most part inequality estimates spanning over recent decades (post-1970 or post-1980, generally with limited variations in inequality levels over time or between countries), we offer a two-century long perspective. This is an important difference as we thereby cover the large historical compression of inequality which in today's richest countries took place primarily before the 1970s. Nonetheless, as we repeatedly stress, results of cross-country regressions on these issues cannot be easily interpreted as causal, also with extended data sets. It is nonetheless a useful research strategy to make explicit which historical comparisons deliver the various regression results and to openly discuss how much we can learn from these results. Historical comparisons between Nordic countries and the US or between pre-1980 and post-1980 productivity growth are not perfect, but this is in some cases the best evidence we have. Our results also speak to a large theoretical body of work exploring the links between inequality and growth (Alesina and Rodrik, 1994; Persson and Tabellini, 1994; Li and Zou, 1998; Aghion et al., 1999; Berg et al., 2018).

This research is also related to the experimental literature on inequality. In particular, recent studies using controlled experiments have shown that redistribution via large asset transfers can raise economic output, both in the short-run and the long-run (Banerjee et al, 2021; Balboni et al, 2022). In other words, inclusiveness effects appear

[6] See also Lindert (2004), Amable (2017), Kenworthy (2020, 2022) and Hassel and Palier (2023).

to be quantitatively more important than disincentives effects, particularly in the low-income contexts studied where the evidence suggest the existence of poverty traps. Our results are consistent with these experimental studies, which by construction can look only at redistributive changes of limited macroeconomic magnitude. Note that these conclusions are also consistent with larger scale studies using historical experiments from major land reforms, which typically find that land redistribution and stronger land tenure rights for poor peasants tend to raise productivity due to inclusiveness and empowerment effects.[7]

Finally, the present research is also related to – and partly motivated by – the literature on "Shared Socioeconomic Pathways" (SSPs) used in climate research, scenario analysis and IPCC reports (Riahi et al, 2017; IPCC, 2023). SSPs attempt to describe various plausible trajectories for global socioeconomic development and resulting climate impact, mitigation, adaptation and cooperation (or lack thereof) in the 21st century. It has been widely noted that a current limitation in SSP scenario analysis is the insufficient modeling of the future distribution of income, wealth, material consumption and carbon emissions between socioeconomic groups. One key reason behind this limitation is the lack of global inequality data and the need for a better understanding of past inequality trajectories and their interaction with economic development. We are trying to address some of these issues in the present research, which hopefully will help define plausible trajectories for income and wealth distribution and contribute to reconcile climate science and inequality studies in the future.[8]

The remainder of the paper is organized as follows. In section 2 we describe our sources, methods and concepts and the structure of our inequality database. Our main results on the historical evolution of income scales and the long-run compression of income inequality in rich countries (particularly in Western and Nordic Europe) are presented in section 3. We discuss in section 4 several possible interpretations regarding the long-run positive relation between equality and prosperity, with particular emphasis on the social-democratic equality narrative. Our results on the limited long-run compression of wealth inequality are described in section 5. Our findings on the positive statistical association between equality and growth are presented in section 6. Finally, we offer concluding comments and discuss future research prospects in section 7.

[7] See e.g. Banerjee et al (2002) and Banerjee and Iyer (2005).
[8] See also Bothe et al (2025) and Chancel and Mohren (2025) for work along these lines.

2. An Extended Inequality Database: Sources and Methods

This research relies on the extended set of income and wealth inequality series from the World Inequality Database (WID) covering all world regions over the 1800-2025 period, together with recently constructed series on hourly productivity (Andreescu et al, 2025) and human capital expenditure (Bharti et al, 2025) covering the same countries, regions and time period. All series are available in the World Inequality Database (wid.world), together with an extensive replication package and multiple technical notes addressing all methodological and technical issues. In what follows, we focus on the most substantial conceptual issues. We refer all interested readers to the online material for supplementary information.

All WID series on income and wealth inequalities used in this research follow very closely the latest edition of the "Distributional National Accounts" (DINA) Guidelines (Chancel et al, 2025).[9] In particular, the concepts of income and wealth that we use in our distributional series follow the definitions in the national accounts. A core identity is that pre-tax and post-tax income always sum up to net national income, as defined by UN System of National Accounts (SNA 2008). In the same way, wealth always sums up to net household wealth, as measured in national balance sheets (SNA 2008).

Following DINA Guidelines, pre-tax income includes social insurance benefits (and removes corresponding contributions) but excludes other forms of redistribution (income tax, social assistance benefits, etc.). In contrast, post-tax income measures the distribution of income after full redistribution, including all forms of taxes and transfers (in-kind and in-cash). In this paper, we will mainly focus on post-tax income distribution estimates, which arguably provides a more comprehensive view of the extent of redistribution and global inequality dynamics. We will also refer to our findings using pre-tax estimates, mostly for the sake of comparison.

The geographical and historical coverage of our extended database is described on Tables 1 and 2. Regarding recent decades (1980-2025), WID distributional series are annual and cover all 216 core countries and jurisdictions defined in WID. Regarding the full historical period (1800-2025), however, WID distributional series are restricted to 57 core territories (48 main countries + 9 residual regions) and to a selected number of benchmark years (1820, 1850, 1880, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980-2025). The 48 main countries were chosen based on population size, GDP, regional representativity and data quality. Throughout the 1800-2025 period, the 48

[9] https://wid.world/methodology/#library-methodological-notes

main countries cover about 85-90% of the world population and GDP, while the 9 residual regions cover 10-15%.[10] In this paper, we focus for the most part on these 48 main countries and benchmark years.[11]

Generally speaking, WID series were constructed by combining a large number of available sources, including historical income tax data, household surveys, inheritance records, wage statistics and national accounts. To a large extent, we have been following the pioneering work of Kuznets (1953), Lampman (1962) and Atkinson and Harrison (1978), who first exploited historical income and inheritance tax data to analyze the long-run evolution of income and wealth distribution, using the US and Britain as case studies. The primary goal of the subsequent literature has been to extend these methods and inequality series to as many countries as possible (see Piketty (2001, 2003), Piketty and Saez (2003), Atkinson and Piketty (2007, 2010)). All series were made available in 2011 in the WTID (World Top Incomes Database), which then became the WID (World Inequality Database) in 2017, as series were extended to the full distributions of income and wealth, from bottom percentiles to top percentiles (using the concept of generalized percentile).[12] Between 2015 and 2025, WID series were extended to more and more countries, and the methods were thoroughly reviewed and improved in order to make the series as consistent as possible. In addition to the permanent updates and extensions to the data series, the past decade was also characterized by the publication of two World Inequality Reports (2018 and 2022) and three major revisions of the DINA Guidelines (2016, 2020 and 2025).[13] Over the past 25 years, more than 200 researchers from all over the world have participated in the construction of the historical series which are now available in WID.[14]

We should make clear that our data series are still imperfect and provisional. We constantly make revisions, and we will continue to do so, as new research, data

[10] See Arias-Osorio et al (2025).
[11] WID series also cover countries-years before 1980. In particular, they include annual or quasi-annual series for many Western countries starting around 1870-1910 (see Arias-Osorio et al (2025, Table 3) for a full description of available series). However, given that the present paper focuses on the long-run relation between equality and development (and is not concerned with short run variations in inequality), we choose to restrict our attention to the same set of benchmark years for all 48 main countries (and use linear interpolation for missing years between benchmark years).
[12] Generalized percentiles (or g-percentiles) refer to the 127 quantiles defined by the bottom 99 percentile, the 9 tenth-of-percentile at the top 1%, the 9 hundredth-of-percentile at the bottom of the top 0.1% and the 10 thousandth-of-percentile within the top 0.01%. Lower threshold and average income for each of the 127 g-percentiles provide the basic distributional data that is being stored in WID.world for each country-year. Country-level and sub-regional-level data by g-percentile can be aggregated up to the regional and world levels using the gpinter (generalized Pareto interpolation) facility available online at wid.world/gpinter. See Blanchet, Fournier and Piketty (2022).
[13] See Alvaredo et al (2018), Chancel et al (2022) and Chancel et al (2025).
[14] See wid.world/team.

sources and methods become available. Despite these imperfections, the global picture about the long-run transformation of income and wealth distributions across world regions is by now well established. In particular, the main long-run facts – which we focus upon in this research and describe in the rest of the paper – appear to be robust and do not depend on specific assumptions and data sources.

Even though this is unlikely to affect our main conclusions, three main limitations and avenues for future improvements are worth pointing out. Generally speaking, the most ancient series are naturally the most fragile. In some countries (e.g. Germany, Denmark, Sweden), homogenous income inequality series begin as early as 1870-1880, thanks to the early introduction of a modern income tax system. Beyond that, thanks to the combination of income tax tabulations and other available sources, we have relatively homogenous income distribution series covering most large countries in Europe, North America and Oceania starting around since 1880-1910 (including Britain, France, Germany, Sweden, the Netherlands, Denmark, Norway, Italy, Spain, US, Canada, Australia, New Zealand), as well as a large number of countries in other world regions since 1900-1930 (including India, Japan, South Africa, Argentina, Chile, Brazil and Russia).[15] Although we have a relatively good coverage of income distribution in most world regions during the period from 1900 to 2025, many of the country series can still be improved and refined through more extensive data collection and digitalization of raw sources.

Next, we stress that the coverage is much weaker for the period going from 1820 and 1900, which is why we only provide estimates for 1820, 1850, 1880 and 1900. Thanks to the early availability of historical inheritance tax microdata and probate records, we do have high-quality wealth distribution series starting around 1750-1800 for a number of European countries (in particular France, Sweden and Britain).[16] All available series indicate a gradual rise in wealth concentration over the 1820-1900 period (starting from a very high inequality level in the early 19th century), so we make a similar assumption for the income and wealth distribution in all countries and regions between 1820 and 1900.[17] This is clearly a strong limitation: if and when new sources become available, we might discover new interesting variations between countries and over time during the 1820-1900 period. In the context of this paper, we mainly use the 1820-1900 series to illustrate the fact that inequality stood at very high levels pretty much everywhere

[15] In some cases, available income tax data in the global South allows us to go back to the 1880s. See e.g. Alvaredo et al (2017) for the case of India. Recent work using colonial tax records also allows to extend the coverage of the database to a number of countries in former French Africa and Indochina back to 1910-1920. See Alvaredo et al (2022).
[16] See Piketty, Postel-Vinay and Rosenthal (2006), Piketty (2014) and Bengtsson et al (2018).
[17] See Chancel and Piketty (2021) and Arias-Osorio et al (2025).

before 1900-1910 and did not start to drastically decline before 1910-1920. Available evidence on preindustrial inequality based on probate records also suggests that wealth concentration was very large and probably rising in most European countries between 1500 and 1800.[18] According to estimates based upon social tables, we also find very high inequality levels – close to material extraction frontiers – in most societies before 1900-1910.[19] These basic facts appear to be relatively well established by now, but it is clear that more research is needed in order to better understand pre-1900 inequality dynamics.

Finally, the post-tax income inequality series which we use in the present research can also be improved in the future. Following the pioneering work of Lindert (2004) and the recent research by Bharti et al (2025), we now have consistent series on public expenditure and revenue by categories covering all world regions over the 1800-2025 period. Public expenditure and revenue were relatively small pretty much everywhere until World War I (less than 10% of GDP) and grew considerably between 1910 and 1980, up to 40-50% of GDP in most European countries in recent decades. Beginning in 1980, WID post-tax series were constructed using detailed micro-level and macro-level data sources (income tax files, household surveys, national accounts) so to attribute all taxes and transfers (in-cash and in-kind) to the various percentiles of the distribution in a consistent manner.[20] In the context of this paper, we make simplifying assumptions in order to extend these series backward. Namely, we assume that pre-tax and post-tax inequality levels are the same until 1910, and then that the magnitude of redistribution evolves linearly between 1910 and 1980 at the country level.[21]

3. The Rise of Income Equality: Income Scales, 1800-2025

We now present our main results regarding the historical evolution of income scales and the long-run compression of income inequality in rich countries (particularly in Western and Nordic Europe). We start with a quick tour of the world map of equality and inequality in recent years, before describing the historical movement toward more equality and prosperity in the long-run. We conclude by looking at alternative inequality indicators and by discussing possible future evolutions of the income scale.

[18] See especially Alfani (2019, 2021, 2023).
[19] See Lindert, Milanovic and Williamson (2011) and Milanovic (2024).
[20] See Fisher-Post and Gethin (2023) and Gethin (2024).
[21] See online replication package and computer code for all details. An alternative estimation strategy consists of using detailed country-level series on public expenditure and revenue by categories and explicit assumptions on their distributional incidence (based upon post-1980 observed profiles and other sources). Preliminary estimates suggest that this would make very little difference.

3.1. The World Map of Equality and Inequality

It is useful to start with a quick world tour of the global map of equality and inequality, on the basis of the most recent data (2022-2025).[22] We begin with a simple indicator, namely the top 10% post-tax income share. In a world of complete equality, this should be equal to 10%. With complete inequality, this should be 100%. By definition, the real world is always in between these two bounds. The point however is that we observe enormous variations between countries, covering almost the entire spectrum. Namely, in recent years, the top 10% post-tax income share varies from less than 20% of total income in Nordic Europe to almost 60% in South Africa (see Map 1).

Interestingly, if we were to look at pretax inequality, we would observe similarly large variations, from about 20-25% for the pretax top 10% share in Nordic Europe to as much as 65-70% in South Africa (see wid.world). In other words, the countries with the lowest level of post-tax inequality are also those which have the lowest level of pretax inequality, and conversely for high inequality countries. According to recent research, this can be accounted for by the fact that many redistributive policies – for instance public education and health expenditures, labour market institutions or progressive taxes on top income and wealth holders – have a strong equalizing impact on pretax incomes. This can be viewed as the "pre-distribution" impact of redistributive policies, and according to recent work this appears to account for the largest part of the variations in post-tax inequality over time and between countries (see Blanchet et al (2022), Bozio et al (2024) and Fisher-Post and Gethin (2023)). We will return below to these issues when we discuss the interpretation of our findings.

From a long-term historical perspective, including pre-industrial periods, we observe inequality never to be as small as in Nordic Europe in recent decades. Throughout the 19th century, we usually observe inequality levels that are comparable or higher than those of today's South Africa. For instance, the top 10% income share in colonial societies like French Algeria was typically as large as 70% (both pretax and post-tax).[23]

[22] Depending on the country, the most recent data updates refer to 2022, 2023 or 2024. In addition, we use the latest projections for growth rates of population, GDP and NNI in 2025 in order to update all country, regional and world distributional estimates up to 2025. Generally speaking, we see relatively little changes in recent years in our distributional series, at least as compared to the enormous historical variations which we analyze below.

[23] See Piketty (2020, Figure 7.3). In the case of colonial societies like French Algeria, the top 10% post-tax share might be even a little larger than the top 10% pretax share, given that the top 10% (the colonizers) tends to receive most of the public expenditure, e.g. as much as 80% of total education expenditure benefiting the top 10% (see Piketty (2020, Figure 7.8) and Cogneau et al (2021)). In contrast, in today's South Africa – but not under Apartheid – the top 10% post-tax share is significantly below the top 10% pretax share (say, around 60% or in post-tax terms vs almost 70% in pretax terms). See Chaterjee et al (2023) and Gethin (2025).

In the slave islands of the Caribbean like Saint-Domingue in the 1780s (possibly the most unequal societies in the history of mankind, with about 90% of the population in slavery), the income share going to the top 10% of the distribution can be estimated to be around 80% or more.[24]

If we now look at the bottom 50% share, we find equally striking variations, including in the recent period. Namely, in recent years, the bottom 50% post-tax income share varies from less than 10% of total income in the world's most unequal countries to about 30-35% in the most equal countries (see Map 2). If we were to look at pretax inequality, we would again find very large variations, from little more than 5% for the pretax bottom 50% share in South Africa in recent years to as much as 25% in Nordic Europe (see wid.world).

It is important to recognize the enormous magnitude of these variations. When the bottom 50% income share is as small as 5-10% of total income, the average income of the bottom 50% amounts to only 10–20% of the average income of the society in which they live, implying a dramatic gap in basic living standards. In contrast, when the bottom 50% income share is as large as 25-35% of total income, the average income of the bottom 50% is about 50-70% of the societal average. Of course, they are poorer than average (by definition), but not by such a wide margin.

The simple conclusion is that distribution matters. For a given average income or per capita GDP (or NNI), the average income of the bottom 50% can vary by a factor of 1 to 4 or 5 depending on the bottom 50% income share observed in this country. If we focus only on macroeconomic aggregates, we risk overlooking much of what is taking place, particularly in terms of the majority population's access to basic living standards. Moreover, in highly unequal countries, aggregate indicators such as per capita GDP tend to reflect the welfare of the rich rather than the average living standard.

Another way to summarize these findings is to look at synthetic inequality indicators, for instance the ratio T10/B50 between the average post-tax income of the top 10% and the bottom 50%. In recent years, the T10/B50 post-tax ratio varies from as little as 2.5-3 in the world's most equal countries to as much as 25-30 in the most unequal

[24] See Piketty (2020, Figure 7.3). It may seem inappropriate to refer to "income" in societies where vast segments of the population do not have rights over their own resources. The top 10% income share around 80% or more to which we are referring here relates to the share of total output that is appropriated by the top 10%, after deducting the resources which need to be devoted to the reproductive needs (food, clothes, shelter) of the rest of the population.

countries (see Map 3). Again, the magnitudes of the variations are mind-blowing, and probably a lot larger than what most observers tend to imagine.[25]

It is also striking to see that rich countries in general – particularly in Western and Nordic Europe, but also in North America, Oceania and Japan – have much lower inequality levels than the rest of the world. In contrast, the poorest countries and world regions are characterized by the highest inequality indicators, especially in Sub-Saharan Africa, South & South-East Asia and Latin America.

Alternatively, one could look at the Gini coefficients, which by construction vary between 0 and 1. In recent years, according to WID series, post-tax Gini coefficients vary from as little as 0.2 in the world's most equal countries to as much as 0.7 in the most unequal countries (see Map 4). Here again, we observe variations of similar magnitude if we concentrate on pretax Gini coefficients (see wid.world).[26]

3.2. The Historical Movement toward Equality & Prosperity

The first striking fact is that inequality levels vary enormously across countries in recent years, and that the world's richest countries also tend to be the most equal. The second striking fact is that inequality levels have changed enormously over time. In particular, today's rich countries have not always been more equal. Quite the contrary: today's rich countries used to be highly unequal – roughly as much as poor countries today – and they have become more equal over time, at the same time as they have become more productive and prosperous. In particular, countries in Western Europe and Nordic Europe used to be extremely unequal in the late 19th and early 20th century and have gone through enormous transformations in their inequality structure over the past century. In order words, inequality is not frozen: it varies substantially over time, and its variations are strongly related to the overall process of economic development.

[25] Intuitively, when the bottom 50% and the top 10% have the same income share (say, 30% of total income each), then the income scale ratio T10/B50 is equal to 5, which is by definition the population ratio between the two groups. But if the bottom 50% share is twice as large as the top 10% share (say, 35% vs 17.5% of total income), then the T10/B50 ratio drops to 2.5. Conversely, if the bottom 50% is five times smaller than the top 10% share (say, 10% vs 50% of total income), then the T10/B50 ratio gets as large as 25.

[26] Although Gini coefficients can be very useful (and are systematically available on wid.world), we tend to prefer more disaggregated indicators like the top 10% or bottom 50% income shares or the T10/P50 ratio (or other inter-percentile ratios which we will later analyze). One key advantage of these disaggregated percentile-based indicators is that they allow to analyze in a more intuitive, transparent and precise manner the variations in inequality levels that are due to variations in the bottom, middle or top parts of the distribution. In contrast, one limitation of Gini-coefficient-centered inequality studies is that they often make it impossible to directly observe the underlying bottom and top shares, which complicates the search for explanations and the detection of potential data anomalies.

We start with the general evolution of the post-tax income shares observed in Western and Nordic Europe. For reasons of representativity and data quality, we concentrate on seven countries, namely three countries in Western Europe (Germany, France, Britain) and four countries in Nordic Europe (Sweden, Denmark, Norway and the Netherlands). The three Western European countries are also the largest European countries in terms of population (with a combined population of 263 million inhabitants in 2025).[27] The four Nordic countries are smaller in size (with a combined population of about 40 million in 2025) but represent an interesting diversity of historical trajectories. [28] The most striking finding is that these seven countries have approximately the same income distribution trajectory over the past two centuries. The raw data sources that we use for these seven countries – in particular the national accounts series and the income tax tabulations going back to 1870-1880 for some of these countries – are fully independent from one another, but they all show strikingly similar trends, namely a massive decline in the top 10% income share, to the benefit of the bottom 50% and the middle 40%.[29]

More precisely, in Western Europe we find that the share of the top 10% highest incomes in total post-tax income fell from over 50% in 1910 to less than 25% in 1980. It has stabilized around 25% since 1980-1990 (with a moderate increase). The bottom 50% income share rose from about 15% in 1910 to over 30% since 1980-1990, and the middle 40% income share rose from less than 35% to almost 45% (see Figure 1).[30] This is a massive transformation in the overall structure of the income distribution.

In the case of Nordic Europe, the magnitude of the transformation is even larger. Namely, the top 10% post-tax income share fell from over 50% in 1910 to less than 20% in 1980-1990. Since 1990, it has increased but remained below 25%, significantly less than in Western Europe. The post-tax share of the bottom 50% rose from little more than 15% in 1910 to almost 40% in 1980-1990 – a truly spectacular transformation. It has declined in recent decades, but it is still close to 35%, a higher level than in Western Europe (see Figure 2).

[27] 86 million for Germany, 68 million for France, 69 million for Britain.
[28] If we were to add other Western or Nordic countries with comparable institutions and development trajectories (like Belgium, Austria, Finland and Switzerland) to our core seven countries, we would have roughly the same population as the United States (337 million in 2025).
[29] Middle 40% refers to the percentiles in between the bottom 50% and the top 10% (P51 to P90).
[30] For simplicity, we report arithmetic averages on Figure 1 and all subsequent figures for Western Europe or Nordic Europe. Because the three Western European countries have approximately the same population and income levels (and similarly for the four Nordic European countries), we obtain virtually identical series for income shares if we use population weights and/or income weights and/or if we compute the individual-level distributions for the all of Western Europe (or Nordic Europe).

If we now look at other country-level series, we observe a substantial decline of the top 10% post-tax income share in all rich countries in the long-run (see Figure 3). The fall was particularly strong in Western and Nordic Europe, and especially in Nordic Europe. But it is striking to see that we observe a long-run decline in the US, albeit of a smaller magnitude, and despite rising inequality since 1980-1990. The distribution of income and wealth was less unequal in the US than in Western and Nordic Europe in the 19th and early 20th century. In 1919, Irving Fisher famously explained in his presidential address to the American Economic Association that the US should adopt steeply progressive taxation to avoid converging toward the "undemocratic distribution of wealth" observed in oligarchic old Europe.[31] But by the end of the 20th century and in the early 21st century the inequality ranking was reversed: the US have become markedly more unequal than Europe (though the US is still substantially less unequal than what they were at the time of Fisher).

We will return in section 4 to the interpretation of these findings, in particular regarding the role played by institutional change, including the rise of the welfare state, progressive taxation, public expenditure in education and health, and labour market regulations. For now, it is worth stressing that we observe the same evolution for pretax income in all rich countries in the long-run, and especially in Western and Nordic Europe (a substantial decline of the top 10% pretax income share).[32]

Several additional results are worth pointing out. First, the strong long-run decline in the top 10% income share that we observe in the world's richest countries over the course of the 20th century did not happen in other world regions. In particular, according to our estimates, the top 10% post-tax income share currently stands at very high levels – around 50-55% in 2010-2025 – in Latin America, Sub-Saharan Africa, South & South-East Asia and Middle East/North Africa, i.e. approximately at the same levels as our estimates over the 1900-1920 period (see Figure 4).[33] Available data sources for these regions are more fragile than for Europe, North America and Oceania, but this general finding and the corresponding orders of magnitude appear to be robust.

[31] See Fisher (1919).
[32] See Appendix Figure D1a and wid.world for complete series. In the US, due to the inequality rebound since 1980-1990, the top 10% pretax income share is currently close to its early 20th century level, and taxes and transfers play an important role to bring the current US top 10% posttax income share substantially below its early 20th century level.
[33] We will return in section 4.3 below on the special case of communist and post-communist countries (in particular Russia and China). Note that the regional and global inequality series reported on figure 4 and subsequent figures were computed as population-weighted averages of country-level inequality series. In other words, they correspond to population-weighted within-country inequality estimates. We discuss in section 4.4 the interplay between within-country and between-country inequality dynamics.

Next, we observe similar results for the bottom 50%. The bottom 50% post-tax income shares in all rich countries rose in the long-run. In countries like Denmark and Sweden, the bottom 50% post-tax income shares were as large as 40% around 1990. They have declined to about 35% since then, but they are still significantly larger than in other countries, and enormously larger than a century ago (see Figure 5). In contrast, in Latin America, Sub-Saharan Africa, South & South-East Asia or MENA, the bottom 50% share does not appear to rise at all in the long-run (see Figure 6).

The important point is that today's rich countries of Western Europe or Nordic Europe have not always been more equal: they have become more equal over the course of the 20th century, at the same time as they became more productive and prosperous. Around 1900-1910, countries in Western Europe or Nordic Europe were, for instance approximately as unequal as Latin America. The difference is that they changed over time and became more equal, while Latin America did not.

If we look at the T10/B50 income ratio, i.e. the ratio between the average post tax incomes of the top 10% and bottom 50%, we find that it fell from about 15-20 in all countries before WW1 to about 2.5-3 in recent decades in Sweden, Denmark, Norway and the Netherlands, and around 4-5 in Germany, France and Britain (see Figure 7). This represents a spectacular compression of the post-tax income scale between the top 10% and the bottom 50% of the distribution. We also observe a substantial long-run compression of the income scale in other rich countries, including US and Japan (with a ratio T10/B50 around 7-9 in recent years), albeit of smaller magnitude. In contrast, the T10/B50 ratio did not fall at all in the long-run in other world regions (see Figure 8). An alternative way to look at this transformation is to consider an indicator of equality like the B50/T10 ratio between the average post-tax incomes of the bottom 50% and top 10%. The rise of equality in rich countries is fairly spectacular in the long-run when viewed from this lens. In Nordic countries like Sweden, Denmark, Norway and the Netherlands, the B50/T10 ratio rose from as little as 5%-8% in 1900-1910 to as much as 40% in the 1980s-1990s and 30-35% in recent years (see Figure 9).

3.3. Income Scales and Other Indicators

We obtain similar results if we look at other inequality indicators. First, we observe a significant decline of the top 1% post-tax income share in all rich countries in the long-run (including in the US, and despite a large rise in inequality since 1980-1990). The fall was strong in Western and even larger in Nordic Europe, with a decline from over

20% of total income in 1900-1910 to about 5-10% in 2010-2025 (in spite of a significant increase since 1980-1990) (see Figure 10).

Next, we also observe a decline of the top 0.1% post-tax income share in rich countries in the long-run (except in the US, where this has been almost completely undone by the large rise in inequality since 1980-1990). The fall was particularly strong in Nordic Europe, with a decline from about 10-12% of total income in 1900-1910 to about 1-3% in 2010-2025 (despite a significant increase since 1980-1990) (see Figure 11).

Similarly, we find a spectacular compression of T1/B50 and T0.1/B50 ratios. E.g. the T1/B50 income ratio between the average post-tax incomes of the top 1% and bottom 50% fell from about 60-80 in all countries before WW1 to about 8-10 in recent years in Sweden, Denmark, Norway and the Netherlands (and around 10-15 in Germany, France and Britain) (see Figure 12). The T0.1/B50 income ratio between the average post-tax incomes of the top 0.1% and bottom 50% fell from 300-400 in all countries before WW1 to about 10-20 in recent years in Sweden, Denmark, Norway and the Netherlands (and around 20-50 in Germany, France and Britain) (see Figure 13).

It is also useful to look at the ratio between the thresholds corresponding to the various percentiles of the post-tax income distribution. For instance, the P99/P10 ratio between the 99^{th} and 10^{th} percentile thresholds fell from about 50-60 in all countries before WW1 to about 3-6 in recent years in Sweden, Denmark, Norway and the Netherlands (and around 5-8 in Germany, France and Britain). We also observe a long-run compression of the P99/P10 ratio in other rich countries, albeit of much smaller magnitude, especially in the US, where recent rise in inequality has almost completely offset the long-run fall of the P99/P10 ratio (see Figure 14). The P99.9/P10 ratio between the 99.9^{th} and 10^{th} percentile thresholds fell from about 150-250 in all countries before WW1 to about 8-15 in recent decades in Sweden, Denmark, Norway and the Netherlands (and around 15-20 in Germany, France and Britain) (see Figure 15).

Finally, although this is not our preferred indicator, we also find a very large long-run decline in Gini coefficients, which fell from about 0.6-0.7 in all countries before WW1 to about 0.15-0.25 in recent decades in Sweden, Denmark, Norway and the Netherlands (and around 0.25-0.3 in Germany, France and Britain). We also observe a substantial long-run compression of the post-tax Gini coefficient in other rich countries, including US and Japan (with a Gini coefficient around 0.4-0.5 in recent decades), albeit of smaller magnitude (see Figure 16).

3.4. The Level of the Income Scale: Past and Future

Given the very large compression of the income scale observed in some of the world's most productive and prosperous countries over the course of the 20th century, it is natural to ask how far the compression could and should go in the future. We should make very clear that it is impossible to provide a fully satisfactory answer to this question. However, we do observe a positive relation between equality and development across countries and time, and we will argue in the following sections that this relation might partly be causal in the direction that increased equality brings additional benefits in terms of productivity growth (or at least does not hurt). However, we stress that it is very difficult to properly identify the impact of equality as such (especially given the strong collinearity between equality and other factors like public expenditure in education and health and the possibility of reverse causality), and we certainly do not claim that we can provide a ready-to-use mathematical formula that can be used to compute the ideal income scale of the future.

That being said, based on historical evidence it is possible to discuss some orders of magnitude for the evolution of global inequality over the course of the 21st century. For instance, we show in Figures 17-18 the possibility that the T10/B50 and T1/B50 average post-tax income ratios will converge toward 2.3 and 3.8 in all countries by 2100. This might seem very ambitious, as these ratios are currently equal to 14.8 and 53.7 on average at the world level.[34] However it should be noted that such an ambitious target is not very different from what was already achieved in Western and Nordic Europe over the course of the 20th century. The T10/B50 and T1/B50 average income ratios are currently equal to 3.7 and 10.8 on average in Western and Nordic Europe, and around 1990 they were as low as 2.4 and 5.5 in Nordic Europe.

Similarly, we plot in Figures 19-20 the possibility that the P99/P10 and P99.9/P10 percentile ratio converge toward 3.4 and 4.9 in all countries by 2100. In effect, with a ratio P99.9/P10 equal to 4.9, this corresponds to a situation where the post-tax income scale goes approximately from 1 to 5.[35] This might seem very ambitious, as the P99/P10 and P99.9/P10 ratios are currently equal to 47.6 and 162.1 on average at the

[34] As explained above, all regional and global inequality series reported in this paper were computed as population-weighted averages of country-level inequality series. In other words, they correspond to population-weighted within-country inequality estimates, i.e. ignoring between-country inequality. We discuss in section 4.3 the interplay between within-country and between-country inequality dynamics.

[35] Assuming that all incomes below P10 are almost exactly equal to P10 (e.g. thanks a basic income scheme) and that all incomes above P99.9 are almost exactly equal to P99.9 (e.g. thanks to a combination of ceilings on maximum incomes and highly progressive taxation at the very top).

world level.[36] On the other hand these ratios are currently equal to 6.3 and 19.2 on average in Western and Nordic Europe, and around 1990 they were as low as 3.6 and 8.7 in Nordic Europe, which is not far from the plotted distribution.

This certainly does not imply that such changes in the distribution of income can easily be reached. From a political viewpoint, the compression of inequality which took place in the 20th century – particularly in Western and Nordic Europe – involved massive social mobilization and institutional change (which we further analyze below). It would require collective transformation of similar magnitude for this process to continue and expand at the world level in the 21st century. Next, from an economic viewpoint, it is possible that the negative disincentives effect of inequality compression suddenly becomes dominant in case we further continue in this direction, over and beyond what has been achieved in Western and Nordic Europe in the past. It is also possible that the incentives effect is being overestimated (just as it has often been in the past) and that the inclusiveness mechanism will again dominate in the future. In the same way as during the 20th century, it is only through concrete and successful large-scale experimentation that the process of inequality compression will continue in the 21st century (or not).

4. Assessing the Social-Democratic Equality Narrative

We now discuss the interpretation of our findings regarding the long-run positive relation between equality and prosperity. We first describe what might be called the "social-democratic equality narrative", according to which equality and prosperity go hand-in-hand in history, in the sense that both derive from the rise of more inclusive institutions, such as the social-democratic institutions developed in Nordic Europe, and to a lesser extent in Western Europe and other rich countries (including the US and Japan). Though we find this view generally compelling, we recognize its limitations, and later address some of the challenges to the equality narrative, namely the difficult identification of the residual effect of equality, the legacy of communism, the legacy of colonialism and the US vs Europe comparison.

4.1. The Social-Democratic Narrative: Equality, Participation & Human Capital

Our favored interpretation of our findings can be labelled the "social-democratic equality narrative". It can be summarized as follows: equality and prosperity historically

[36] We observe approximately the same ratios in Western and Nordic Europe in 1900-1910. See Appendix Figure A5i.

emerged jointly as they both arise from more inclusive access to human capital, public services, workers' rights and democratic participation. In effect, modern economic growth requires that an ever-rising share of the population has access to high-quality education and health and participates more and more intensively in the democratic decision-making, both in the political sphere (including elections, referenda, participatory democracy, etc.) and the economic sphere (including democracy at the workplace). The social-democratic equality narrative does not deny that negative incentives effects of equality can also exist. However, it is based on the empirical and historical observation that positive inclusiveness effects appear to historically outweigh the negative incentives effects, at least in the long-run and over the range of inequality levels observed in the past.

The social-democratic equality narrative is based on a number of striking empirical and historical observations. First, we observe a very large decline of inequality in rich countries over the course of the 20th century, particularly in Western Europe and the Nordics. The magnitude of the decline is truly enormous – more than what most observers would typically imagine (and certainly more than we imagined before starting this research). For instance, the ratio P99/P10 between the 99th and the 10th percentiles of the post-tax income distribution dropped from about 50 in 1910 to less than 5 in recent decades in Nordic Europe, and the ratio P99.9/P10 dropped from about 150 to less than 10, that is a division by more than 10 of the income scale over the past century.[37] We find compression of similar magnitude for other indicators. Most notably, the ratio T10/B50 between the average post-tax incomes of the top 10% and the bottom 50% dropped from about 15-20 to around 2.5-3, and the ratio T1/B50 dropped from about 60-80 to around 5-8.[38]

It is also striking to note that this decline is due in largest part to the fall of pretax income inequality. In Western and Nordic Europe, about two thirds of the total decline in post-tax inequality during the 20th century can be accounted for by the fall in pretax inequality, and about one third by the direct redistributive effect of taxes and transfers.[39] This is the other key finding coming from WID series, and this can be accounted for by the fact that many redistributive policies – for instance public education and health expenditure, labour market institutions (including minimum

[37] See Figures 15-16 above.
[38] See Figures 7-8 above.
[39]See Appendix Figures D2a-D2b and D4a-D4b and wid.world for complete series. In Nordic Europe, the pretax T10/B50 average income ratio dropped from 16.0 in 1910 to 4.5 in 1990 and 6.4 in 2025, while the posttax T10/B50 ratio dropped from 16.0 in 1910 to 2.4 in 1990 and 3.5 in 2025. Pretax inequality was reduced by a factor of about 2.5-3, while posttax redistribution further reduces pretax inequality by a factor of about 1.5-2. Both effects play a very important role, but the first effect appears to be even larger than the second one (almost twice as large in the long-run).

wages, collective bargaining, workers' rights) or even progressive taxes on top income and wealth holders – have a strong equalizing impact on pretax incomes. This can be viewed as the "pre-distribution" impact of redistributive policies, and according to WID series and to recent research this appears to account for the largest part of the variations in post-tax inequality over time and between countries.[40]

Next, the other striking fact is that the countries which have gone through the largest inequality reduction over the course of the 20th century – particularly Nordic countries – are also the countries that have experienced the fastest productivity growth. Generally speaking, US productivity – as measured by net domestic product per work hour – was substantially larger than average European productivity during most of the 19th and 20th centuries, before converging to approximately the same level since 1980-1990 (see Figure 21).[41] If we break down Europe between different subgroups, we find that Nordic Europe became more productive than the US around 1970 and has maintained a significant productivity gap with both Western Europe and the US over the 1970-2025 period (see Figure 22). The important point is that Nordic countries were substantially less productive than Western Europe and the US in the 19th century and early 20th century, and it is only over the course of the 20th century that they became more productive, at the same as they became more egalitarian. If we look at the specific countries, we observe that productivity levels have become particularly high in Norway in recent years, closely followed by Denmark, Sweden, Germany and the Netherlands (all above US levels) (see Figure 23).

The most natural explanation is that Nordic countries were able to develop particularly inclusive social-democratic institutions during the 20th century, which allowed them to become both more equal and more productive. In all rich countries, public expenditure has grown considerably over the past century, from less than 10% of GDP everywhere before WW1 to as much as 40-50% of GDP or more in some countries in recent

[40] See Blanchet et al (2022), Bozio et al (2024) and Fisher-Post and Gethin (2023). Note that high-end tax progressivity – as it was applied during the 20th century, with rates as high as 70-80% or more on top incomes and inheritances – had a major impact on pretax inequality, first because it contributed to reduce the long-run concentration of wealth and capital income (see the wealth accumulation simulations analyzed by Piketty (2001, 2003); see also Piketty, Postel-Vinay and Rosenthal (2018)); and next it also played a major role to compress the salary scale and especially top-end executive compensation (in effect, top-end progressivity reduces the incentives of CEO to bargain for higher pay; see Piketty, Saez and Stantcheva (2014) for an empirical and theoretical analysis).

[41] Here we use the historical labour hours series and resulting productivity estimates constructed and analyzed by Andreescu et al (2025). For recent decades the labour hours series are basically the same as those available in standard international datasets (OECD, BLS, etc.). Historical national accounts series are based upon WID series (combining Maddison series and other recent work). Note that the comparisons between countries are virtually identical for hourly GDP than for hourly NDP, as capital depreciation (consumption of fixed capital) has followed similar evolutions in all countries (approximately from 10% to 15% of GDP over the past century; see Dietrich et al (2025, Figure C1)).

decades. The rise was particularly strong in Nordic Europe, followed by Western Europe, but it also happened in other rich countries, including the US and Japan.[42] The typical public expenditure which can explain both the rise of equality and productivity in Nordic countries (and more generally in rich countries) is public spending on education and health: it makes individuals more equal and at the same time more productive at the aggregate level. Note that the most standard explanation as to why the US were able to catch up with Britain during the 19th century and became the global productivity leader during most of the 20th century was because they had a strong educational advance over Europe and the rest of the world at the same time.[43] Incidentally, our inequality series also show the US were also more equal than Europe during most of the 19th and 20th centuries. More generally, there are many studies, both at the macro and micro levels, which confirm that human capital expenditure is a very powerful force to raise and equalize incomes at the same time, both between countries and within countries.[44]

4.2. Refining the Social-Democratic Narrative: the Residual Effect of Equality

The more difficult question is whether equality has a *residual* positive effect on productivity as such, controlling for human capital expenditure and other social-democratic institutions and policies affecting both equality and productivity. We present in section 6 some regression results showing that equality does seem to have a residual positive impact on productivity, controlling for human capital expenditure. However, we stress that such regression results cannot easily be interpreted as causal and that the association remains fragile, given the high collinearity between the various explanatory variables. The most promising research strategy in our view is to closely examine the concrete country-level examples (or counter-examples) which contribute to generate such regression results, and to openly discuss how much we can learn from these examples.

In practice, one of the reasons why we identify a positive residual impact of equality via cross-country regressions is because countries in Nordic and Western Europe do not have a particularly high human capital expenditure, especially as compared to the US. Generally speaking, total public expenditure in education and health is much larger

[42] See Lindert (2004) and Bharti et al (2025).
[43] See e.g. Goldin (2001).
[44] See e.g. Bharti et al (2025), who use global country-level series on human capital expenditure and productivity (hourly NDP) over the 1800-2025 period and identify a strong positive impact of human capital expenditure on productivity growth rates (corresponding to annual rates of return around 10% or more, in line with micro studies). See also Gethin (2025), who combines micro level and macro level data in order to estimate that education expenditure explains as much as 45% of total aggregate income growth at the world level over the 1980-2019, and as much as 60% for bottom income groups.

in the world's richest regions (12-14% of GDP in Europe and North America/Oceania in recent years) than in the world's poorest regions (5-6% of GDP in Subsaharan Africa and South and South-East Asia), with a gap that has grown over time in absolute terms, but which was even larger in relative terms in the 19th and early 20th century than what it is in the early 21st century (see Figure 24).[45] If we look at different groups of countries within Europe, we find that Nordic Europe was characterized by unusually large public human capital expenditure between the 1950s and the 1980s, which can contribute to explain unusually fast productivity growth. However, the Nordic lead narrows in the 1990s and falls below US public expenditure level during the 2000-2025 period (see Figure 25). Most importantly, if we include private expenditure, then we find that total human capital expenditure (public and private) has risen to very high levels in the US in recent decades, and that the gap with Nordic and Western Europe has reached enormous proportions (almost 10 points of GDP in recent years) (see Figure 26). We also see a very large gap if we exclude health expenditure and look separately at education expenditure (public and private) (see Figure 27).

Given the much larger human capital expenditure observed in the US, we should expect to see substantially higher productivity levels in the US, especially if equality had a negative residual impact on productivity (due to disincentive effects). The fact that US productivity has been on par with Europe since 1980, and stands at significantly lower levels than in Nordic Europe, suggests that equality has a positive effect on productivity (due to inclusiveness effects). For example, a more equal distribution of post-tax income implies that poor parents have more resources to support their kids in their educational and occupational trajectory and help them experience upward mobility, and that poor adults can more easily recover from negative income shocks. This interpretation is consistent with the fact that countries with less cross-sectional inequality (like Nordic countries) are also characterized by higher levels of intergenerational mobility, while we see the opposite for countries with more cross-sectional inequality (like the US, Brasil or South Africa).[46]

Available evidence also suggests that high private expenditure in human capital (like in the US) might be highly beneficial to top income groups, but with a lower positive impact on aggregate productivity than public expenditure.[47] It is also striking to see that

[45] All human capital expenditure series that are presented here come from Bharti et al (2025).
[46] See e.g. Durlauf et al (2022) for a recent survey.
[47] See Bharti et al (2025) for cross-country regression results showing that public human capital expenditure (and especially public education expenditure) has a higher impact on aggregate productivity growth than private expenditure. Regarding health outcomes such as life expectancy, it is well-known from the US vs Europe comparison that private health expenditure has a lower impact than public expenditure. See e.g. Rosen (2017).

if we include private human capital expenditure then we find that total human capital expenditure (public and private) has been significantly larger in Latin America than in Europe in recent decades (as a fraction of GDP).[48] This again suggests that private human capital expenditure has a smaller aggregate impact on productivity than public expenditure, and that the residual impact of inequality is negative. We will return to this discussion in section 6 when we present regression results.

4.3. Challenges to Equality Narrative: The Communist Legacy

The social-democratic equality narrative is very compelling, but it also faces a number of important challenges. One such challenge is closely related to the legacy of communism. Communist countries are often described as very egalitarian societies, at least in terms of monetary income scale, and the dramatic failure of communism during the 20th century – in particular in the Soviet Union and in Maoïst China – is sometime used to argue that excessive equality has detrimental effects for productivity growth.

This important challenge can be addressed in several ways. First, the social-democratic equality narrative is certainly not saying that more equality is always good, and that a more compressed distribution of income and wealth is a sufficient condition for economic success. The social-democratic equality narrative is based on the idea that successful economic development requires many other conditions – such as sustained and inclusive investment in human capital and a decentralized economic system – and that if these conditions are met then equality does not harm productivity and may even entail a positive additional impact. In the case of the Soviet Union or Maoist China, the reason for failure is arguably the existence of a failing central-planning and single-party system, not excessive equality as such.

Next, and most importantly, if we look carefully at available evidence, we find that Soviet Russia and Maoist China were not particularly egalitarian, at least as compared to social-democratic European countries. For instance, if we look at the T10/P50 ratio between the average post-tax income of the top 10% and the bottom 50%, we find that this ratio was actually higher in the USSR than in Nordic Europe (Sweden, Denmark, Norway, Netherlands) during the period from the 1950s to the 1980s (see Figure 28). The gap is particularly striking in the 1980s: Nordic Europe appears to be a lot more egalitarian than the USSR at the time, and this does not prevent Nordic Europe from being at the very top of world productivity ladder. We reach the same conclusion when we compare Maoist China to Nordic Europe (see Figure 29), and also when we look at

[48] See Appendix Figure B2g.

the ratio T1/B50 between the average post-tax income of the top 1% and the bottom 50%, both for the USSR and Maoist China (see Figures 30-31). We should also stress that our estimates of inequality in the USSR and Maoist China are mostly based upon household surveys and probably underestimate the extent of in-kind incomes available for the elite and therefore the extent of inequality.[49]

Finally, note that the enormous rise of inequality which happened in Russia after the fall of communism did not seem to have a particularly positive impact on productivity growth, which (if anything) went down in recent decades.[50] In the case of China, productivity growth rose substantially since 1980, but one can plausibly argue that this has little to do with rising inequality but rather with the end of central planning and the development of a more decentralized economic system.[51] A similar argument can be made for India: the upsurge of growth since 1990 has arguably more to do with the abandonment of some of the ill-conceived "state socialism" policies of the previous period than with rising inequality per se. It is also striking to see that India has a lot more inequality than China but a lot less productivity growth, which can however also be explained by larger human capital expenditure in China.[52]

4.4. Challenges to Equality Narrative: Colonial Extraction & Unequal Exchange

Another important challenge to the social-democratic equality narrative has to do with the legacy of colonialism. According to many observers and authors, the prosperity of Western countries - and particularly of European countries - is closely related to colonial extraction and unequal exchange, and has little to do with a long-run historical movement toward « equality ».

This important challenge needs to be addressed in several ways. First, it is clear that unequal North-South relations have played a major role in the « great divergence » between the West and the rest of the world. As Pomeranz (2000), Parthasarathi (2011), Beckert (2014) and others have shown, colonial expansion played a key role in the 18th and 19th centuries in order to impose a very profitable world division of labour and resources for the colonizers, and most importantly to relax Europe's ecological constraint (lack of land and other natural resources). This is not saying that colonialism

[49] We do attempt to take into account in-kind incomes in Soviet Russia but only in a very imperfect and limited manner. See Novokmet, Piketty and Zucman (2018).
[50] See Appendix Figure C1j. According to available national accounts series, the sharp compression of inequality after 1917 appears to be associated to a strong rise in productivity growth - at least as compared to the very low growth observed during the Tsarist period -, which can partly be accounted for by high investment in education and health.
[51] See Appendix Figure C1h.
[52] See Appendix Figure C1i.

and slavery were necessary conditions for the Industrial Revolution to happen. The Industrial Revolution could also have taken place with a different set of institutions, but then the imports of cotton, wood, sugar, grain and other commodities which fed Europe's take-off would have cost a lot more to Europeans, leading potentially to a very different distribution of income and wealth. Recent research has shown via counterfactual simulations that different terms of exchange since 1800 could indeed have led to different outcomes, with enough extra resources for poor countries to invest in education, health and other infrastructures to generate quasi-complete productivity convergence by 2025.[53] To summarize, between-country inequality is a major issue that cannot be properly addressed without recognizing the legacy of colonialism, as well as the unequal responsibilities and burdens involved in climate change. To foster inequality compression between countries, it is critical to increase education and health spending drastically in the world's poorest countries.[54]

This does not imply however that European welfare states were financed by colonialism, and that there is nothing useful to learn from the movement toward inequality observed within rich countries during the 20th century. If anything, European welfare states were developed at a time when the resources coming from colonial extraction and unequal exchange were less important than they used to be. They were largely financed via major domestic redistribution between the upper classes and the middle and lower classes within rich countries (Piketty, 2020). In the future, the reduction of inequality within countries and between countries could reinforce each other and have no reason to be in opposition.

4.5. Challenges to Equality Narrative: The Europe vs US Comparison

Another challenge to the equality narrative is the Europe vs US comparison. According to a relatively widespread view, rising inequality in the US since 1980 has had a positive impact on innovation and productivity, and has allowed the US to be more innovative and more successful than European countries in high-tech sectors.

This important challenge can be addressed in several ways. First, it is important to keep in mind that aggregate productivity, as measured by the best available economic statistics at our disposal (hourly net domestic product using PPP series), has been consistently larger in Nordic Europe than in the US throughout the 1980-2025 period, with little change over time, and that it has been roughly at the same level in the US

[53] See Nieves and Piketty (2025). See also Chancel and Piketty (2021).
[54] See e.g. Bharti et al (2025).

and in Western Europe over the same period (see Figures 21-23).[55] Of course other factors can explain exceptionally high US performance in some specific sectors. In particular, total expenditure in education and health (public + private) is exceptionally high in the US. This includes top US universities with vastly higher resources than their European counterparts, which can contribute to explain high innovation in certain sectors. The important point, however, is that this does not translate into higher aggregate US productivity, despite substantially larger aggregate human capital expenditure. This suggests that what specific sectors or individuals gain is in the aggregate quantitatively less important than what other sectors and segments of the population lose. Note that higher corporate capitalization can also result from various specific factors, like market size and/or market power, which do not necessarily come with high productivity and collective prosperity.

Next, the post-1980 rebound of inequality observed in the US (and to a lesser extent in Europe and in the rest of the world) was not accompanied by faster growth, but rather by lower productivity growth. First, at the global level, it is striking to see that equality and productivity growth have moved together since the 19th century. Productivity growth reached its peak during the 1950-1990 period, when equality was at its highest historical level, and declined during the 1990-2025 period, after equality started to decline (see Figure 32). It is very difficult however to interpret this evidence, as it puts together various effects coming from very different parts of the world. In addition, the 1950-1990 period was unusual for all sorts of reasons, including post-WW2 reconstruction. This is particularly striking in the case of Europe, which enjoyed exceptionally fast growth during this period. Growth rates then fell substantially during the 1990-2025 period, but it is obviously very difficult to infer anything meaningful about the equality-growth relationship from this specific experience (see Figure 33).

A more interesting case to consider is that of the US. The country has always been at the world productivity frontier (or close to the frontier) since the late 19th century, and the shocks caused by WW1 and WW2 were much more limited than for Europe. In particular, the country's productivity growth rate during the 1950-1990 period was not exceptional: it was a bit higher than during the 1870-1910 and 1910-1950 periods, but it was quite close. What was exceptional was the relatively low productivity growth rate observed over the 1990-2025 period (see Figure 34). On the basis of this evidence, it is challenging to argue for a positive impact of rising inequality on productivity growth and economic performance. Finally, if we look at the rest of the world (outside Europe

[55] Very often, the productivity comparisons that are made between Europe and the US do not take into account differences in labour hours or differences in price levels, or both at the same time, which is unfortunate, because both factors are economically meaningful.

and North America/Oceania), it is also striking to see that the post-1980 rebound of inequality does not seem to be associated with any rebound in productivity growth (see Figure 35). All in all, the claim according to which the post-1980 inequality boost generated a productivity boost does not seem to be backed by the historical series.

4.6. Similitudes and Differences with Other Interpretations

The interpretation developed in this paper - namely the social-democratic equality narrative - bears a number of similarities as well as some important differences with existing approaches. In particular, our work is closely related to the large literature on comparative development, welfare states and "varieties of capitalism".[56] Many authors in this area have stressed that there exists a large diversity of institutions that can lead to successful economic development, including advanced welfare states with very compressed income scales, typically in Nordic Europe, which often appear at the very top of the productivity ladder.[57] Our results are very much consistent with this literature. The main novelty is that we provide a global historical quantification of inequality compression and economic performance in Western and Nordic Europe in comparison to the rest of the world. One striking result is that the historical compression of the post-tax income scale in Nordic Europe (and to a lesser extent in Western Europe) is even larger than what one might have expected.

There also exists a large literature in development economics and economic history stressing the crucial role of "inclusive" institutions (as opposed to "extractive" institutions) for the analysis of comparative development, and to understand the rise of Western countries. While our analysis bears some similarities with this "neo-institutionalist" literature, we stress that it is important to be explicit what is meant exactly by "inclusive" institutions (which might reveal some important disagreements), as well as about the political conditions behind institutional change. For instance, according to one influential school of thought, the main institution driving successful economic development is the existence of well-protected property rights.[58] The problem with this view is that it does not consider the fact that high wealth inequality might come with extreme concentration of economic power and political power, which is not necessarily good for development. Successful inclusive institutions in the 20th

[56]See Esping-Andersen (1990), Hall and Soskice (2000) and the subsequent literature. See also Lindert (2004), Amable (2017), Kenworthy (2020, 2022) and Hassel and Palier (2023).
[57]See also Barth and Moene (2016), Iacomo (2018) and Iacomo and Palagi (2022). Note that the positive impact of equality on productivity might come not only from the inclusiveness/education/participation channel (which we emphasize in this work) but also from other mechanisms, including demand-led growth and high-wage-induced technical change. See e.g. Bengtsson and Stockhammer (2021).
[58] See North and Weingast (1989).

century do include a mixture of rising public expenditure (education, health, public infrastructures and services, social protection), labour rights (rebalancing of power between capital owners and workers), progressive taxation of income and wealth, and so on, which has often been neglected in some of the neo-institutionalist literature.[59]

We also emphasize that that these major institutional changes would not have taken place without intense social struggles and political mobilizations and major transformations of legal and constitutional rules. For instance, Sweden was characterized until 1911 by a particularly unequal political system. Within the top 20% of men rich enough to be able to vote, electors were divided into about 40 groups, each associated with a different electoral weight. Concretely, members of the least wealthy group each had one vote, whereas those in the richest group had as many as 54 votes. It took enormous mobilization to replace this high unequal system by a more democratic regime, after which the Social Democrats won elections in 1932 and put the state capacity of the country to the service of a completely different political project.[60] Some of these transformations might seem almost consensual today, but at the same time they were strongly opposed by the elite (as well as by many economists).

Another important issue and source of potential disagreement is whether the historical movement toward more economic and political equality is now over. According to some scholars, the level of equality attained in Nordic Europe should be viewed as a form of absolute optimum, and there is no need to go beyond this.[61] While we have some sympathy for this argument, it is unclear why the historical movement toward equality should stop exactly at this level – especially regarding the distribution of wealth and inheritance, which as we will show next remains highly concentrated. Also, it is not entirely clear according to this view whether the target should be Nordic inequality around 1990 or around 2025. The evidence put together in this paper suggests that the rebound of inequality which took place since the 1980s-1990s (and which was largely driven by the argument that “equality has gone too far”) was not particularly useful from the viewpoint of collective welfare. Based on available historical evidence,

[59] In their earlier work, Acemoglu, Johnson and Robinson (2001, 2005) followed the North-Weingast logic and emphasized the role of well-protected property rights in the rise of the West. In their later work (see e.g. Acemoglu and Robinson (2012, 2019)), they take a broader view of the notion of “inclusive” institutions, which can potentially include welfare states, public services or even progressive taxation, though they are not entirely explicit about the various components.

[60] See Bengtsson (2019). We also observe large-scale constitutional changes in all rich countries between 1910 and 1950 (including Britain, the US, Germany and France), without which the historical movement toward more equality would not have taken place. See Piketty (2022). Recent work has also shown that one of the key forces behind rising preindustrial inequality was the ability of wealth elites to control state power and maintain regressive tax systems. See Alfani (2019).

[61] See e.g. Kenworthy (2022) and Waldenstrom (2024).

we suggest that it is difficult to decide in advance about the end point of the historical movement toward equality.

5. The (Limited) Rise of Wealth Equality: Wealth Scales, 1800-2025

We now turn to our results on the limited long-run compression of wealth inequality. We start with a quick tour of the world map of wealth inequality in recent years, before describing the limited historical movement toward more wealth equality in the long-run. We conclude this section by looking at alternative wealth inequality indicators and by discussing possible future evolutions of the wealth scale.

5.1. The World Map of Wealth Inequality

In the same way as for income inequality, it is useful to start with a discussion of the global map of wealth equality and inequality, based on the most recent data (2022-2025). We again begin with a simple indicator, namely the top 10% wealth share. There are two striking findings. First, we observe enormous variations between countries. Namely, in recent years, the top 10% wealth share varies from about 50% of total wealth in the most equal countries – again in Western and Nordic Europe – to as much as 80-90% of total wealth in the most unequal countries like South Africa (see Map 5). Next, the other striking finding is that wealth concentration is always a lot larger than income inequality. While top 10% post-tax income shares vary approximately from about 20% to 50-60% of total income (see Map 2), top 10% wealth shares vary from 50% to 80-90% (see Map 5). We observe a very strong positive correlation between top income shares and top wealth shares.[62] The fact that that top wealth shares are always a lot larger than top income shares can be accounted for by the fact that wealth can be accumulated and transmitted over several generations. Also, wealth concentration tends to be amplified by various multiplicative shocks and by unequal rates of return across the wealth distribution.[63]

It is also striking to see that the bottom 50% wealth share is always below 10% of total wealth, and generally between 0% and 5% of total wealth (see Map 6). In some cases, the bottom 50% wealth share can even be negative: this corresponds to countries where there is a substantial fraction of the population with negative net wealth (i.e. more debt than assets). While we do our best to ensure that our wealth inequality

[62] See Bajard et al (2025) and Arias-Osorio et al (2025). Note that this positive correlation is very large and robust and holds separately in every subperiod (and in particular over the 1800-1909, 1910-1979 and 1980-2025 periods) as well as over the entire 1800-2025 period.
[63] See e.g. Piketty and Saez (2013), Piketty (2014) and Piketty and Zucman (2015).

series are as homogenous as possible, including for the very bottom part of the distribution, we stress that the recording of negative net wealth individuals involves substantial measurement challenges which need to be better addressed in the future.[64]

Given the fact that the bottom 50% wealth share is generally close to 0% (or sometime slightly negative), the ratio T10/B50 between the average wealth of the top 10% and bottom 50% is not a very meaningful inequality indicator. One possibility is to use the Gini coefficient, which unsurprisingly takes very high values across the world, but with large variations, from 0.6-0.7 to 0.9-1 (see Map 7).[65] Below we will introduce other indicators to measure the evolution of wealth inequality over time and across countries.

5.2. The Limited Movement toward Wealth Equality

We now turn to our results on the historical evolution of wealth concentration. There are two important facts that are true at the same time. First, wealth concentration has always been very large, and the bottom 50% wealth share has always been extremely small. Next, despite this persistently high concentration of wealth, we do observe a significant long-run movement toward more wealth equality in rich countries, and particularly in Western and Nordic Europe.

We start with the general evolution of the wealth shares observed in Western and Nordic Europe. For reasons of representativeness and data quality, we again concentrate on seven countries, namely three countries in Western Europe (Germany, France, Britain) and four countries in Nordic Europe (Sweden, Denmark, Norway and the Netherlands). The most striking finding is again that these seven countries have approximately the same trajectory in terms of wealth distribution over the past two centuries. As noted earlier, the raw data sources that we use for these seven countries – in particular the inheritance tabulations and probate record registries going back to 1800 for some of these countries – are fully independent from one another, but they all show strikingly similar trends for wealth inequality in these countries.

[64] Also note that the measurement of bottom wealth shares involves a number of conceptual issues which can create large gaps between otherwise comparable countries. For instance, Sweden has a negative bottom 50% wealth share (due to high household debt and the existence of a significant fraction of the population with negative net wealth), while the Netherlands has a significantly positive bottom 50% wealth share (close to 10% of total wealth, one of the largest in the world). However, this is largely due to the existence of large funded private pension wealth in the Netherlands, which is conceptually counted as part of private wealth, in spite of limited individual control rights over these assets (almost as limited as the control rights over public pensions or other public expenditure flows in Sweden and other countries). See Martinez-Toledano et al (2023), Bauluz et al (2025) and Manduca (2025).

[65] Technically the wealth Gini coefficient can also be larger than 1 due to negative wealth individuals.

More precisely, we find that the share of the top 10% wealth holders in total household wealth in Western Europe fell from about 85% in 1910 to about 55-60% since 1980-1990, with a moderate rise in recent decades. This fall benefited mostly to the next 40% (the "patrimonial middle class"), whose share rose from about 10-15% in 1910 to about 40% since 1980-1990 (see Figure 36). In Nordic Europe, the magnitude of the transformation is even stronger: wealth concentration around 1910 was as extreme as in Western Europe to begin with, and in recent years the top 10% wealth share has been around 55% of total wealth, vs about 45% for the next 40% (see Figure 37).

Note that the bottom 50% share has remained extremely small, both in Western and Nordic Europe: around 5-10% or less, with a decline in recent decades.[66] It should also be noted that this is not due to an age effect: the bottom wealth 50% share is almost as small if we look at the wealth distribution within each age group.[67]

Despite the persistence of a propertyless bottom 50%, the rise of the middle 40% corresponds nevertheless to a very important and significant economic and political transformation. In the 19th and early 20th centuries, there was basically no patrimonial middle class, in the sense that the middle 40% owned almost as little wealth as the bottom 50%. Today, the bottom 50% is still close to being propertyless, but the key difference is that the middle 40% now owns a very significant share of total household wealth: around 40-45% of total wealth in Western and Nordic Europe, i.e. almost as much as the top 10% wealth group. In practice, this corresponds to a vast segment of the population who now own their home and/or small- and medium-size business assets, with enormous economic and political consequences.[68]

If we now look at country-level series, we observe in all rich countries a significant fall of the top 10% wealth share between 1910 and 1980 (see Figure 38). In the US, wealth concentration was less extreme than in Europe to begin with. The fall was also less massive, and it was partly undone by rising wealth concentration since 1980-1990.

We also observe in all rich countries a significant rise of the wealth share of the "patrimonial middle class" (the middle 40%, in between the top 10% and the bottom

[66] As was already note, there are large variations between countries. E.g. within Nordic Europe the bottom 50% wealth varies from negative levels in Sweden to significant positive levels in the Netherlands (but still small), with an average that is not significantly different from that of Western Europe.
[67] See Garbinti et al (2021).
[68] By definition, when a group representing 40% of the population owns about 40% of total wealth, it means that their average wealth is equal to average wealth of the entire country. Average per adult net household wealth is around 200-250 thousand € in Western and Nordic Europe, and the patrimonial middle class (the middle 40% in between the bottom 50% and the top 10%) includes individuals whose per adult net wealth ranges approximatively from 100 to 400-500 thousand of €.

50%) (see Figure 39). In the US, the rise was less massive than in Western Europe or Nordic Europe, and it was again partly undone by rising wealth concentration since 1980-1990. It should be noted however that the middle 40% wealth share remains at a higher level in the US than what it was in the early 20th century. The largest historical rise in the middle 40% wealth share happened in Nordic Europe, followed by Western Europe, Japan and the US.

Finally, it is worth noting that most of the long-run fall in the top 10% wealth share is due to the very large fall of the top 1% wealth share (see Figure 40). In effect, around 1910, the top 1% used to own a lot more wealth than the middle 40%, while the opposite is true today. This is a very significant transformation.

Another way to visualize the magnitude of the transformation is to look at the ratio T10/M40 between the average wealth of the top 10% and the middle 40%. This ratio has declined in all rich countries in the long-run, from about 20-30 in 1900-1910 to about 5-7 in Nordic and Western Europe since 1980-1990 (see Figure 41). Alternatively, one can look at the ratio P99/P50 between the 99th and the 50th wealth percentiles of the wealth distribution. This ratio has declined in all rich countries in the long-run, from about 200-300 in 1900-1910 to about 10-20 in Nordic and Western Europe since 1980-1990 (see Figure 42). This corresponds to a division by more than 10 of the wealth scale.

Although the historical wealth inequality series at our disposal are more limited outside rich countries, available evidence suggests that the long-run compression of the wealth scale that we observe in the rich world (and particularly in Western and Nordic Europe) did not happen as much – or did not happen at all – in other parts of the world.[69]

5.3. The Level of the Wealth Scale: Past and Future

Given the significant compression of the wealth scale observed in some of the world's most productive and prosperous countries over the course of the 20th century, it is natural to ask how far this could and should go in the future at the global level. In the same way as with the income scale, we should make very clear that it is impossible to provide a fully satisfactory answer to this question at this stage.

[69] In particular, available estimates show that the top 10% wealth shares in Latin America, Subsaharan Africa and South & South-East Asia are currently around 70-80% or more, i.e. not very different from what they were in Europe and in other countries around 1910. See Appendix Figure E1h.

However, available evidence suggests that the historical movement of wealth concentration had a positive impact on economic development and productivity growth.[70] In particular, it has been shown that the long-run decline of the top 10% wealth share (and especially the top 1% wealth share) and the corresponding rise of the middle 40% share which occurred in rich countries in the 20th century came with a large decline in the share of inherited wealth in total wealth.[71] In other words, the decline of wealth concentration came with the rise of new social groups who were able to access housing and business assets. In presence of credit constraints, such a diffusion of wealth can have positive efficiency effects and can contribute to explain the very fast productivity growth rates in Western and Nordic Europe observed during the post-WW2 period.

For illustrative purposes, we consider on Figure 43 the possibility that the historical movement toward wealth equality continues in the 21st century. We start from the observation that the ratio P90/P50 between the 90th and the 50th percentiles of the wealth distribution has been divided by almost 10 in Nordic Europe over the course of the 20th century, while the P99/P50 and P99.9/P50 ratios have been divided by more than 20. In the target level inequality for the world by 2100 described on Figure 43, the P99/P50 is further divided by about 2, the P99/P50 by 3 and the P99.9/P50 by 10. While this may seem ambitious, this is actually a substantially smaller compression of the wealth scale than what happened during the 20th century. In addition, the bottom of the wealth distribution is assumed to rise to significant levels, with a P10 percentile around 50% of average wealth. This could be implemented via a system of universal minimal inheritance,[72] and this would allow children among the bottom 50% to reach approximately to the same level of inherited wealth (in relative terms) as the middle 40% during the 20th century, which we argue could entail very positive efficiency consequences. In effect, the P99.9/P10 wealth ratio would be equal to 8, which would correspond to a situation where the wealth scale goes approximately from 1 to 10.[73] In the same way as for income and wealth compression in the past, such an important transformation is very unlikely to happen without large collective mobilization and institutional change.

---

[70] Using variation in land inheritance rules across Germany, Bartels et al. (2024) find that areas with more equal land division rules historically have higher incomes in contemporary times as well as higher levels of entrepreneurship.

[71] Similarly, the rebound of wealth inequality in recent decades came with a rebound of the share on inherited wealth. See Alvaredo et al (2017).

[72] See e.g. Piketty (2022, Figure 30) for the description of system of universal minimal inheritance received at age 25 and equal to 60% of average wealth, for an annual cost around 5% of GDP paid for by progressive wealth and inheritance taxes on top wealth holders.

[73] Assuming that all wealth levels below P10 are almost exactly equal to P10 (e.g. thanks a basic inheritance scheme) and that all wealth levels above P99.9 are relatively close to P99.9 (e.g. thanks to highly progressive income and wealth taxation at the very top).

6. The Positive Association Between Equality and Prosperity

To complement the historical and descriptive analysis, we now present some findings on the positive statistical association between equality and productivity. We first start with simple graphical evidence and then discuss the regression results.

6.1. Graphical Evidence

The simple graphical evidence shows the positive statistical association between equality and productivity. On Figure 44, we plot the relation between a simple indicator of equality – namely the B50/T10 ratio between the average post-tax income of the bottom 50% and the top 10% - and today's hourly productivity. We find a strong and clearly positive relationship: more equal countries also tend to be more productive. Note that some countries are substantially above the regression line, which means that they are a lot more productive than what they should be based on their equality level and the statistical relation observed on average across all countries. For instance, Norway has an unusually high hourly productivity, which can be explained by the large additional income from the fossil fuel sector.[74] Other outliers include Saudi Arabia and the US, which also relies heavily on fossil fuels.[75] It is worth noting that there was no clear positive statistical association between equality and productivity back in 1910 (see Figure 45). This is partly due to the fact that all countries were comparatively unequal at the time. This also illustrates an important transformation in the origins of wealth.

The central collinearity problem is shown in Figure 46. That is, more equal countries are more productive, but countries with more education expenditure are also more productive, and the two explanatory variables – equality and education – are strongly correlated with one another. One difference with the previous figure is that we now observe that most countries from Western and Nordic Europe are above the regression line. That is, irrespective of the special case of Norway, we find that countries like Denmark, Sweden, Netherlands, Germany, France and Britain are more productive than what they should be based on their education expenditure alone. One possible interpretation is that this is partly due to a positive residual impact of equality on productivity, controlling for other factors.

[74] See e.g. Iacono (2019).
[75] Over the past 15 years, fossil fuels made 6-8% of US GDP, which is substantially less than in Norway and Saudi Arabia (20% or more) but substantially more than in the rest of Europe (1-2% or less).

6.2. Regression Results

We now turn to the regression results. We first use a specification in levels and then a specification in growth rates. In the level specification, we are running the following regression over the 1990-2025 period and the data set for the 48 main countries:

$$Prod_{it} = a + b\ Equal_{it} + c\ HumanCapital_{it} + \epsilon_{it} \qquad (1)$$

With:
$Prod_{it}$ = productivity level (hourly NDP in 2025 PPP €) in country i and year t
$Equal_{it}$ = average equality level (B50/T10 posttax income ratio) in country i between years t-30 and t (past 30 years)
$HumanCapital_{it}$ = average human capital expenditure (% GDP) in country i between years t-30 and t (past 30 years)

Our main result is that we find a positive impact of equality on productivity (b>0). The magnitude of the coefficient does go down after we control for human capital expenditure, but it remains positive and highly significant (see Table 3). In other words, part of the reason why we observe a positive equality-productivity relationship is indeed that more equal countries also tend to have to more human capital expenditure, but this is not the full explanation: we still observe a positive residual relationship of equality on productivity even after controlling for human capital expenditure. As we already explained, the typical countries that are driving this result are low-inequality Western and Nordic European countries (with higher productivity than expected on the basis of their human capital expenditure alone) and high-inequality Latin American countries (with lower productivity than expected on the basis of their human capital expenditure). In our baseline specification, we use total human capital expenditure (education and health, public and private).[76] We also include education expenditure separately: education expenditure has a larger impact on productivity than health expenditure, but this does not affect the residual positive relationship with equality (see Table 3). Finally, we also used specifications with separate coefficients for public and private human capital expenditure. Public expenditure appears to have a larger coefficient than private expenditure,[77] but again this has little effect on the equality coefficient.

[76] We also focus on age-adjusted human capital expenditure (i.e. taking into account variations in the age structure of each country), as this increases the explanatory power of human capital variables. See Bharti et al (2025). Note that this has little impact on the equality coefficient.
[77] See Bharti et al (2025).

In the growth rate specification, we are running the following regression over the 1800-2025 period and the data set with the 48 main countries:

$$ProdGrowthRate_{it} = a + b\ Equal_{it} + c\ HumanCapital_{it} + \epsilon_{it} \qquad (2)$$

With:

$ProdGrowthRate_{it}$ = average annualized growth rate of productivity (hourly NDP in 2025 PPP €) in country i between years t-30 and y (pat 30 years)
$Equal_{it}$ = average equality level (B50/T10 posttax income ratio) in country i between years t-30 and t (past 30 years)
$HumanCapital_{it}$ = average human capital expenditure (% GDP) in country i between years t-30 and t (past 30 years)

We find again a significant positive and significant correlation of equality on productivity growth rates. This persists after the introduction of country fixed effects and controls for human capital expenditure (see Table 4).

We should again stress that we provide these regressions for illustrative purposes only, and that we certainly do not view them as fully conclusive. The existence of long lags, the multiplicity of explanatory factors and the strong collinearity between them, as well as the possibility of reverse causality make such regressions inherently fragile. For instance, we use controls for human capital expenditure, but we do not have controls for other policies which might be positively correlated with equality and which might have a positive impact on productivity, independently from equality. Just to take an example: it could be that the policies enacted in Nordic Europe and in Germany in order to promote workers rights and workplace democracy (like codetermination rules, with up to 50% of voting rights for workers representatives in corporate boards) have a direct positive impact on productivity (as workers are more involved in the long term strategy of their company) at the same time as they promote a more egalitarian wage scale and income distribution. However our data series and econometric specifications do not allow us to properly control for this, so it could be that part of the positive productivity impact that we attribute to equality is actually due to codetermination and workplace democracy.[78] It should also be noted that the residual positive equality

[78] One could try to go further by introducing a codetermination dummy, which might reduce the size of the equality coefficient. We could also introduce other institutional dummies, such as a central-planning dummy in order to take into account that post-1980 Chinese growth has more to do with the end of the central planning than with rising inequality as such. If we were to do this, then the equality coefficient would increase in size. However given the long and uncertain time lags associated to the various institutional factors, we choose not to go in this direction. For the same reasons, we do not attempt to

coefficient is relatively modest in size, at least in the level specification and in comparison to the impact of education expenditure. E.g. an increase of 10 percentage points of the equality index yields a coefficient on productivity that is about 4 times smaller than a similar increase in education expenditure (see Table 3, Column 3).

For all these reasons and the related identification challenges, these regression results ought to be interpreted very carefully. Our cautious interpretation is as follows. There exists a strong positive association between equality and development, but this positive association largely stems from common causes, namely policies and institutional changes (like human capital expenditure) which lead to both more equality and higher productivity. Available evidence also suggests that there exists a residual positive relation between equality and productivity, even after controlling for other factors like human capital, but it is difficult to be certain about the magnitude.

At the very least, based on the body of historical and comparative evidence that we have analyzed in this paper, we feel that we can rule out the possibility of a significant negative impact of equality on productivity (at least over the inequality ranges observed in the past). In particular the post-tax income scale has been divided by more than 10 in Nordic Europe over the course of the 20th century (from 50 to 5 for the P99/P10 ratio and from 150 to 10 for the P99.9/P10 ratio), and this did not prevent these countries from becoming the most productive in the world, in spite of much lower human capital expenditure than in the US. This simple evidence seems hard to reconcile with the idea of a significant negative impact of equality on productivity.

7. Concluding Comments

In this paper, we have mobilized the extended set of WID income and wealth inequality series over the 1800-2025 period, together with recently constructed global historical series on hourly productivity and human capital expenditure, to revisit the relationship of inequality and development, with a much broader comparative and historical perspective than previous studies.

Our main finding is that there exists a strong positive association between equality and productivity. Most rich countries, especially in Western and Nordic Europe, have gone through an enormous compression of the income scale during the 20th century, at the same time as they have become substantially more productive. Our proposed

enter income and wealth equality separately in our regression framework: they are so collinear that the results will be relatively fragile and will depend a lot on the exact specification.

interpretation is that this co-movement of equality and productivity is largely due to a set of social-democratic institutions that emerged, especially in Western and Nordic Europe. Next to this main mechanism, we suggest that some of the country and time variations are best accounted for by the existence of a positive residual association between equality and productivity. This argument is based on a number of striking developments at the country level. First, Nordic countries have higher productivity than the US, despite lower levels of total human capital expenditure (public and private) compared to the US. Also, the post-1980 rebound of inequality observed in the US (and to a lesser extent in Europe) was not accompanied by faster but rather by slower productivity growth. Next, and more generally, the high inequality levels observed in many world regions - including Latin America, South and Southeast Asia and Sub-Saharan Africa - appear to be associated with comparatively lower productivity levels.

Finally, although we have emphasized Nordic and Western Europe as the prime example for the social-democratic narrative, lessons from the Global South are integral to our understanding. For instance, the rapid economic growth that China has experienced in recent decades was built on large-scale human capital investments in the preceding decades, in sharp contrast to India which liberalized its economy with a relatively less educated workforce.[79] Moreover, in contrast to India, China was able to combine lower levels of inequality with much faster growth rates. At the same time, India's mixed record combining reforms, redistribution, and persistent dispersion points to how state capacity, public investment in human capital, and institutionalized bargaining mediate the equality–growth link. Before concluding, it is worth emphasising that we are certainly not making a case for countries to simply emulate the socio-economic structure of Nordic and Western Europe, but rather to draw lessons from the entire repertoire of past development trajectories – starting with their own trajectory – in order to imagine their pathway to the future.

We stress again that the identification of a positive residual association of equality on productivity remains fragile, and that more research is needed in order to better understand the relationship between equality and development. Thanks to the participation of over 200 scholars from all over the world, WID inequality series have a broader historical and comparative coverage than previous data sets. But they are still incomplete and have many limitations. In particular, more research is needed to improve the coverage and comparability of our core series on the distribution of pretax

[79] Bharti and Yang (2025) argue that China relied on a much more bottom-up approach to the development of its education system, in contrast to the top-down approach in India. Consequently, education inequality explains nearly a quarter of wage inequality in India in recent years, compared to just 2% in China.

and post-tax income and on the distribution of wealth. A special emphasis should be put on improving the long-run historical series outside the Global North, for which our current series rely on substantial assumptions. Next, finer historical decompositions would be needed – for instance between the distribution of labour income and capital income – to be able to better identify the impact of various policies and institutional transformations (human capital, labour market institutions, progressive taxation, etc.). Finally, and maybe most importantly, we feel that it is difficult to look at long-run prospects for inequality and productivity growth within the context of a standard one-dimensional growth model, without considering the urgent need for structural transformation and deep decarbonization. Future research should attempt to reconcile inequality studies, climate science, material accounting and the sectoral structure of growth in the decades to come. We hope that the present research can be a useful step in this direction.

References

Acemoglu, D., Johnson, S., & Robinson, J. (2001). The colonial origins of comparative development: An empirical investigation. *American Economic Review*, 91(5), 1369–1401.

Acemoglu, D., Johnson, S., & Robinson, J. (2005). The rise of Europe: Atlantic trade, institutional change and economic growth. *American Economic Review*, 95(3), 546–579.

Acemoglu, D., & Robinson, J. (2012). *Why nations fail: The origins of power, prosperity and poverty*. Crown Publishers.

Acemoglu, D., & Robinson, J. (2019). *The narrow corridor: States, societies, and the fate of liberty*. Penguin.

Aghion, P., Caroli, E., & García-Peñalosa, C. (1999). Inequality and economic growth: The perspective of the new growth theories. *Journal of Economic Literature*, 37(4), 1615–1660.

Alesina, A., & Rodrik, D. (1994). Distributive politics and economic growth. *Quarterly Journal of Economics*, 109(2), 465–490.

Alfani, G. (2019). *The lion's share: Inequality and the rise of the fiscal state in preindustrial Europe*. Cambridge University Press.

Alfani, G. (2021). Economic inequality in preindustrial times: Europe and beyond. *Journal of Economic Literature*, 59(4), 1147–1191.

Alfani, G. (2023). *As gods among men: A history of the rich in the West*. Princeton University Press.

Alvaredo, F., Bergeron, A., & Cassan, G. (2017). Income concentration in British India, 1885–1946. *Journal of Development Economics*, 127, 459–474.

Alvaredo, F., Chancel, L., Piketty, T., Saez, E., & Zucman, G. (Eds.). (2018). *World inequality report 2018*. Harvard University Press.

Alvaredo, F., Cogneau, D., & Piketty, T. (2021). Inequality under colonial rule: Evidence from French Algeria, Cameroon, Tunisia, Vietnam and comparisons with British colonies 1920–1960. *Journal of Development Economics*, 152, Article 102680.

Alvaredo, F., Garbinti, B., & Piketty, T. (2017). On the share of inheritance in aggregate wealth: Europe and the USA, 1900–2010. *Economica*, 84, 239–260.

Amable, B. (2017). *Structural crisis and institutional change in modern capitalism*. Oxford University Press.

Andreescu, M., Loubes, R., Piketty, T., & Robillard, A. S. (2025). Global labour hours in paid and unpaid work: Inequality, productivity and structural transformation, 1800–2100 (WIL Working Paper 2025/09).

Arias-Osorio, M., Bauluz, L., Brassac, P., Martínez-Toledano, C., Moshrif, R., & Piketty, T. (2025). WID distribution series: Updated and extended coverage, 1800–2024 (WIL Technical Note 2025/04).

Atkinson, A. B., & Harrison, A. J. (1978). *Distribution of personal wealth in Britain*. Cambridge University Press.

Atkinson, A. B., & Piketty, T. (Eds.). (2007). *Top incomes over the twentieth century: A contrast between continental European and English-speaking countries*. Oxford University Press.

Atkinson, A. B., & Piketty, T. (Eds.). (2010). *Top incomes: A global perspective*. Oxford University Press.

Bajard, F., Bauluz, L., Brassac, P., Chancel, L., Martínez-Toledano, C., Piketty, T., & Sodano, A. (2025). Global wealth inequality on WID.world: Estimates and imputations (WIL Technical Note 2025/01).

Balboni, C., Bandiera, O., Burgess, R., Ghatak, M., & Heil, A. (2022). Why do people stay poor? *Quarterly Journal of Economics*, 137(2), 785–844.

Banerjee, A., & Duflo, E. (2003). Inequality and growth: What can the data say? *Journal of Economic Growth*, 8(3), 267–299.

Banerjee, A., Duflo, E., & Sharma, G. (2021). Long-term effects of the Targeting the Ultra Poor program. *American Economic Review: Insights*, 3(4), 471-486.

Banerjee, A., Gertler, P., & Ghatak, M. (2002). Empowerment and efficiency: Tenancy reform in West Bengal. *Journal of Political Economy*, 110(2), 239–280.

Banerjee, A., & Iyer, L. (2005). History, institutions, and economic performance: The legacy of colonial land tenure systems in India. *American Economic Review*, 95(4), 1190–1213.

Banerjee, A., & Piketty, T. (2005). Top Indian incomes, 1922–2000. *World Bank Economic Review*, 19, 1–20.

Barro, R. J. (2000). Inequality and growth in a panel of countries. *Journal of Economic Growth*, 5(1), 5–32.

Bartels, C., Jäger, S., & Obergruber, N. (2024). Long-term effects of equal sharing: Evidence from inheritance rules for land. *Economic Journal*, 134(664), 3137-3172.

Barth E., K.O. Moene, "The Equality Multiplier: How Wage Compression and Welfare Empowerment Interact", *Journal of the European Economic Association*, 14(5), 2016, 1011–1037

Bauluz, L., Brassac, P., Dietrich, J., Martínez-Toledano, C., Nievas, G., Odersky, M., Piketty, T., & Sodano, A. (2025). Global wealth accumulation and ownership patterns 1800–2025 (WIL Working Paper 2025/22).

Beckert, S. (2014). *Empire of cotton: A global history*. Knopf.

Bengtsson, E. (2019) The Swedish Sonderweg in question: Democratization and inequality in comparative perspective, 1750–1920. *Past and Present*, 238(1), 52–91.

Bengtsson, E., Missiaia, A., Olsson, M., & Svensson, P. (2018). Wealth inequality in Sweden, 1750–1900. *Economic History Review*, 71(4), 772-794.

Bengtsson, E., Stockhammer, E. (2021), "Wages, Income Distribution and Economic Growth: Long-Run Perspectives in Scandinavia, 1900-2010", Review of Political Ecoomy, 33(4), 725-774

Berg, A., Ostry, J. D., Tsangarides, C. G., & Yakhshilikov, Y. (2018). Redistribution, inequality, and growth: New evidence. *Journal of Economic Growth*, 23(3), 259–305.

Bharti, N., & L. Yang (2024). The Making of India and China in the 21st Century: Long-run Human Capital Accumulation from 1900 to 2020 (WIL Working Paper 2024/24).

Bharti, N., Chancel, L., Piketty, T., & Somanchi, A. (2024). Income and wealth inequality in India 1922–2023: The rise of the billionaire raj (WIL Working Paper 2024/09).

Bharti, N., Gethin, A., Jenmana, T., Mo, Z., Piketty, T., & Yang, L. (2025). Human capital, unequal opportunities and productivity convergence: A global historical perspective 1800–2100 (WIL Working Paper 2025/15).

Blanchet, T., & Martínez-Toledano, C. (2023). Wealth inequality dynamics in Europe and the United States: Understanding the determinants. *Journal of Monetary Economics*, 133, 25–43.

Blanchet, T., Chancel, L., & Gethin, A. (2022). Why is Europe more equal than the US? *American Economic Journal: Applied Economics*, 14(4), 480–518.

Blanchet, T., Fournier, J., & Piketty, T. (2022). Generalized Pareto curves: Theory and applications. *Review of Income and Wealth*, 68(1), 263–288.

Bothe, P., Chancel, L., Gethin, A., & Mohren, C. (2025). Global income inequality by 2050: Convergence, redistribution, and climate change (WIL Working Paper 2025/10).

Bozio, A., Garbinti, B., Goupille-Lebret, J., Guillot, M., & Piketty, T. (2024). Predistribution vs redistribution: Evidence from France and the US. *American Economic Journal: Applied Economics*, 16(2), 31–65.

Chancel, L., Flores, I., Moshrif, R., Nievas, G., & Piketty, T. (Eds.). (2025). *Distributional national accounts guidelines: Methods and concepts used in the World Inequality Database*. World Inequality Lab.

Chancel, L., & Mohren, C. (Eds.). (2025). *Climate inequality report 2025*. World Inequality Lab.

Chancel, L., Piketty, T., Saez, E., & Zucman, G. (Eds.). (2022). *World inequality report 2022*. Harvard University Press.

Chancel, L., & Piketty, T. (2021). Global income inequality, 1820–2020: The persistence and mutation of extreme inequality. *Journal of the European Economic Association*, 19(6), 2973–3018.

Chatterjee, A., Czajka, L., & Gethin, A. (2023). Redistribution without inclusion? Inequality in South Africa since the end of apartheid (WIL Working Paper).

Cogneau, D., Dupraz, Y., & Mesplé-Somps, S. (2021). Fiscal capacity and dualism in colonial states: The French empire 1830–1962. *The Journal of Economic History*, 81(2), 441–480.

Deininger, K., & Squire, L. (1996). A new dataset measuring income inequality. *World Bank Economic Review*, 10(3), 565–591.

Durlauf, S. N., Kourtellos, A., & Tan, C. M. (2022). The Great Gatsby curve. *Annual Review of Economics*, 14, 329–356.

Esping-Andersen, G. (1990). *The three worlds of welfare capitalism*. Princeton University Press.

Fisher, I. (1919). Economists in public service. *American Economic Review*, 9(1), 5–21.

Fisher-Post, M., & Gethin, A. (2023). Government redistribution and development: Global estimates of tax and transfer progressivity 1980–2019 (WIL Working Paper 2023/17).

Forbes, K. J. (2000). A reassessment of the relationship between inequality and growth. *American Economic Review*, 90(4), 869–887.

Garbinti, B., Goupille-Lebret, J., & Piketty, T. (2018). Income inequality in France 1900–2014: Evidence from distributional national accounts (DINA). *Journal of Public Economics*, 162, 63–77.

Garbinti, B., Goupille-Lebret, J., & Piketty, T. (2021). Accounting for wealth inequality dynamics: Methods, estimates and simulations for France. *Journal of the European Economic Association*, 19(1), 620–663.

Gethin, A. (2024). A new database of general government revenue and expenditure by function, 1980–2023 (WIL Working Paper 2024/01).

Gethin, A. (2025). Who benefits from public services? Novel evidence and implications for inequality measurement. *Journal of Development Economics*.

Gethin, A. (2025). Distributional growth accounting: Education and the reduction of global poverty, 1980–2019. *Quarterly Journal of Economics*, 140(4), 2571-2618.

Goldin, C. (2001). The human capital century and American leadership: Virtues of the past. *Journal of Economic History*, 61(2), 263–292.

Hall, P. A., & Soskice, D. (2001). *Varieties of capitalism: The institutional foundations of comparative advantage*. Oxford University Press.

Hassel, A., & Palier, B. (2023). Same trend, different paths: Growth and welfare regimes across time and space. *Annual Review of Political Science*, 26, 347–368.

Iacono R., "The Nordic Model of Economic Development and Welfare: Recent Developments and Future Prospects", *Intereconomics: Review of European Economic Policy*, 53(4), 2018, 185-190.

Iacono, R., “The Norwegian Oil Bonanza and the Scandinavian Model in Comparative Perspective”, *Comp Econ Stud* 61, 2019, 63–82

Iacono, R. & Palagi, E., "Still the Lands of Equality? Heterogeneity of Income Composition in the Nordics, 1975–2016", *The B.E. Journal of Economic Analysis & Polic*y, 22 (2), 2022, p. 221-268

Intergovernmental Panel on Climate Change. (2023). *Climate Change 2023: Synthesis Report* (Contribution of Working Groups I, II and III to the Sixth Assessment Report). PCC, Geneva, Switzerland.

Kenworthy, L. (2020). *Social-democratic capitalism*. Oxford University Press.

Kenworthy, L. (2022). *Would democratic socialism do better?* Oxford University Press.

Kuznets, S. (1953). *Shares of upper income groups in income and saving*. National Bureau of Economic Research.

Li, H., & Zou, H. F. (1998). Income inequality is not harmful for growth: Theory and evidence. *Review of Development Economics*, 2(3), 318–334.

Lindert, P. H. (2004). *Growing public: Social spending and economic growth since the 18th century*. Cambridge University Press.

Lindert, P. H., Milanovic, B., & Williamson, J. G. (2011). Preindustrial inequality. *Economic Journal*, 121(551), 255–272.

Maddison, A. (2001). *The world economy: A millennial perspective*. OECD Publishing.

Manduca, R. (2025). Should social insurance programs count as wealth? Augmented wealth in research and policy. *Socio-Economic Review*.

Martínez-Toledano, C. (2023). House price cycles, wealth inequality and portfolio reshuffling (Working Paper).

Martínez-Toledano, C., Sodano, A., & Toussaint, S. J. (2023). Wealth inequality in the Netherlands, 1894–2019: Updated series with and without pension wealth (WIL Technical Note 2023/13).

Milanovic, B. (2024). How rich were the rich? An empirically based taxonomy of preindustrial bases of wealth. *Explorations in Economic History*, 83, Article 101551.

Nievas, G., & Piketty, T. (2025). Unequal exchange and North–South relations: Evidence from global trade flows and the world balance of payment 1800–2025 (WIL Working Paper 2025/11).

North, D. C., & Weingast, B. R. (1989). Constitutions and commitment. *Journal of Economic History*, 49(4), 803–832.

Novokmet, F., Piketty, T., & Zucman, G. (2018). From Soviets to oligarchs: Inequality and property in Russia, 1905–2016. *Journal of Economic Inequality*, 16(2), 189–223.

Parthasarathi, P. (2011). *Why Europe grew rich and Asia did not: Global economic divergence 1600–1850*. Cambridge University Press.

Persson, T., & Tabellini, G. (1994). Is inequality harmful for growth? Theory and evidence. *American Economic Review*, 84(3), 600–621.

Piketty, T. (2001). *Les hauts revenus en France au 20e siècle* [*Top incomes in France over the 20th century*]. Grasset. (English edition: Harvard University Press, 2018.)

Piketty, T. (2003). Income inequality in France, 1901–1998. *Journal of Political Economy*, 111(5), 1004–1042.

Piketty, T. (2013). *Le capital au 21e siècle* [*Capital in the 21st century*]. Seuil. (English edition: Harvard University Press, 2014.)

Piketty, T. (2019). *Capital et idéologie* [*Capital and ideology*]. Seuil. (English edition: Harvard University Press, 2020.)

Piketty, T. (2021). *Une brève histoire de l'égalité* [*A brief history of equality*]. Seuil. (English edition: Harvard University Press, 2022.)

Piketty, T., Postel-Vinay, G., & Rosenthal, J.-L. (2006). Wealth concentration in a developing economy: Paris and France, 1807–1994. *American Economic Review*, 96(1), 236–256.

Piketty, T., & Saez, E. (2003). Income inequality in the United States, 1913–1998. *Quarterly Journal of Economics*, 118(1), 1–39.

Piketty, T., & Saez, E. (2013). A theory of optimal inheritance taxation. *Econometrica*, 81(5), 1851–1886.

Piketty, T., Saez, E., & Stantcheva, S. (2014). Optimal taxation of top labor incomes: A tale of three elasticities. *American Economic Journal: Economic Policy*, 6(1), 230–271.

Piketty, T., Saez, E., & Zucman, G. (2018). Distributional national accounts: Methods and estimates for the United States. *Quarterly Journal of Economics*, 133(2), 553–609.

Piketty, T., Yang, L., & Zucman, G. (2019). Capital accumulation, private property and rising inequality in China, 1978–2015. *American Economic Review*, 109(7), 2469–2496.

Piketty, T., & Zucman, G. (2015). Wealth and inheritance in the long run. In A. B. Atkinson & F. Bourguignon (Eds.), *Handbook of income distribution* (Vol. 2B, pp. 1303–1368). North-Holland.

Pomeranz, K. (2000). *The great divergence: China, Europe and the making of the modern world economy*. Princeton University Press.

Riahi, K., et al. (2017). The Shared Socioeconomic Pathways and their energy, land use, and greenhouse gas emissions implications: An overview. *Global Environmental Change*, 42, 153–168.

Roser, M. (2017). Link between health spending and life expectancy: US is an outlier. *Our World in Data*. https://ourworldindata.org/health-spending-life-expectancy

Waldenström, D. (2024). *Richer and more equal: A new history of wealth in the West*. Polity.

Table 1. WID Benchmark Distributional Series: Geographical & Historical Coverage

Pretax income (sptinc, aptinc, tptinc) **Posttax income** (sdiinc, adiinc, tdiinc) **Net household wealth** (shweal, ahweal, thweal) (equal-split, per capita and per-adult)	All 216 core countries	1980-2024 (annual series)	All 127 g-percentiles
	All 57 core territories (48 main countries + 9 residual regions)	1820, 1850, 1880, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980-2024 (annual series)	All 127 g-percentiles

WID benchmark distributional series for pretax income, posttax income and net household wealth cover all 216 core countries and jurisdictions for all years over the 1980-2024 period, and are restricted to 57 core territories (48 main countries + 9 residual regions) and to a selected number of benchmark years over the 1800-1980 period (1820, 1850, 1880, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970). See wid.world/code-dictionary for variable names and the list of core countries and territories.

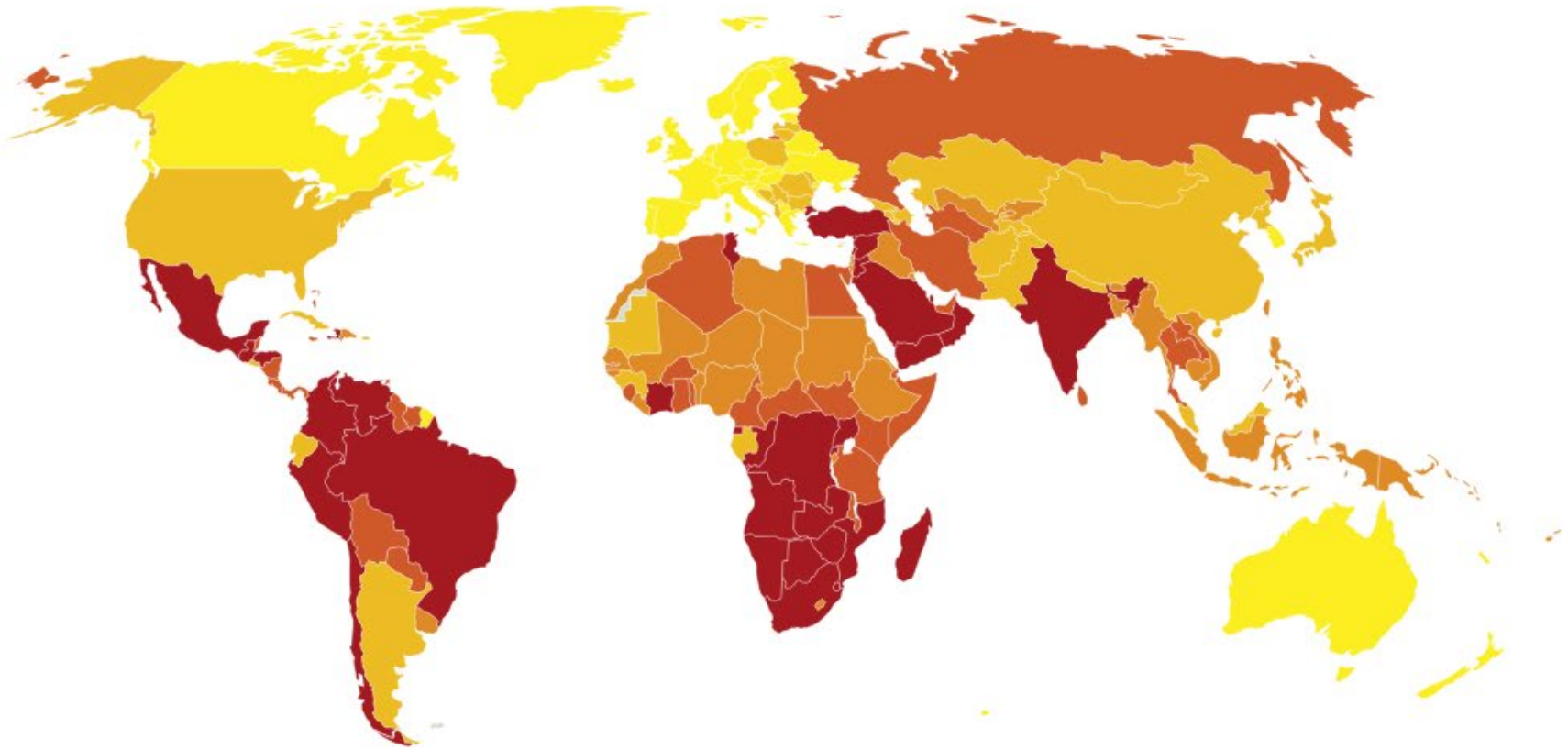
Table 2. Core Territories Used in WID Historical Series

(57 core territories = 48 main countries + 9 residual regions)

East Asia (5)	China, Japan, South Korea, Taïwan Other EASA
Europe (11)	Britain, Denmark, France, Germany, Italy, Netherlands, Norway, Spain, Sweden, Other W.EUR, Other E.EUR
Latin America (6)	Argentina, Brasil, Chile, Colombia Mexico, Other LATAM
Middle East/ North Africa (8)	Algeria, Egypt, Iran, Morocco, Saudi Arabia, Turkey, UAE, Other MENA
North America/ Oceania (5)	USA, Canana, Australia, New Zealand Other NAOC
Russia/ Central Asia (2)	Russia Other RUCA
South/South-East Asia (9)	Bengladesh, India, Indonesia, Myanmar, Pakistan, Philipinnes, Thailand, Vietnam, Other SSEA
Sub-Saharan Africa (11)	DR Congo, Ethiopa, Kenya, Ivory Coast, Mali, Niger, Nigeria, Rwanda, Sudan, South Africa, Other SSAF

For recent decades (1980-2024), WID series cover all 216 WID core countries and jurisdictions for all years. Regarding long-run historical series (1800-1980), WID series generally cover all 57 core territories (48 main countries + 9 residual regions) for all years (national accounts) or for a selected set of benchmark years (1820, 1850, 1880, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970). The 48 main countries were chosen on the basis of population size, GDP, regional representativity and data availability. Throughout the 1800-2025 period, the 48 main countries cover about 85-90% of the world population and GDP, while the 9 residual regions cover 10-15%.

Map 1. Top 10% post-tax national income share (2024)

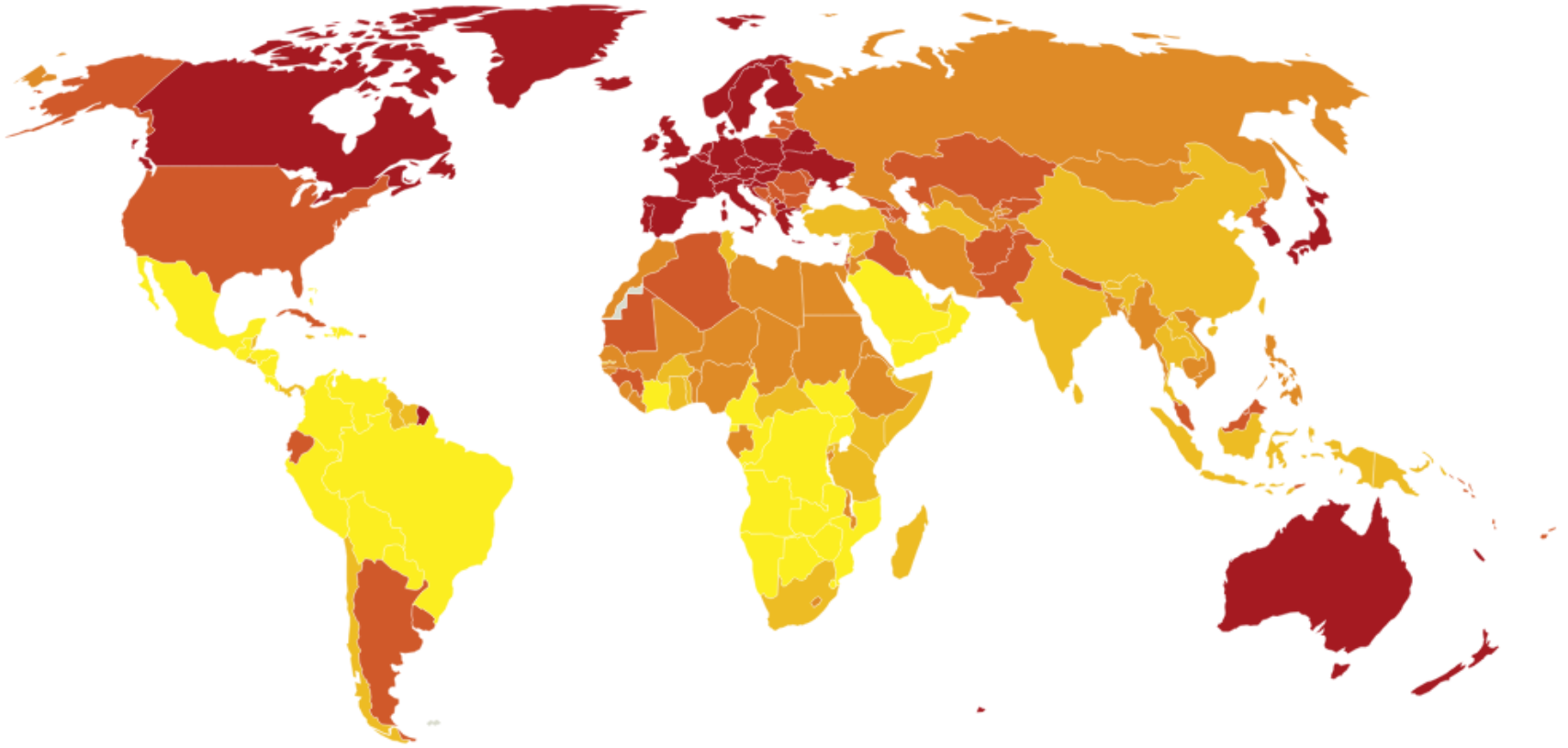


Share of total (%)

19 - 32 | 32 - 41 | 41 - 45 | 45 - 49 | 49 - 58

Graph provided by www.wid.world

Map 2. Bottom 50% post-tax national income share(2024)

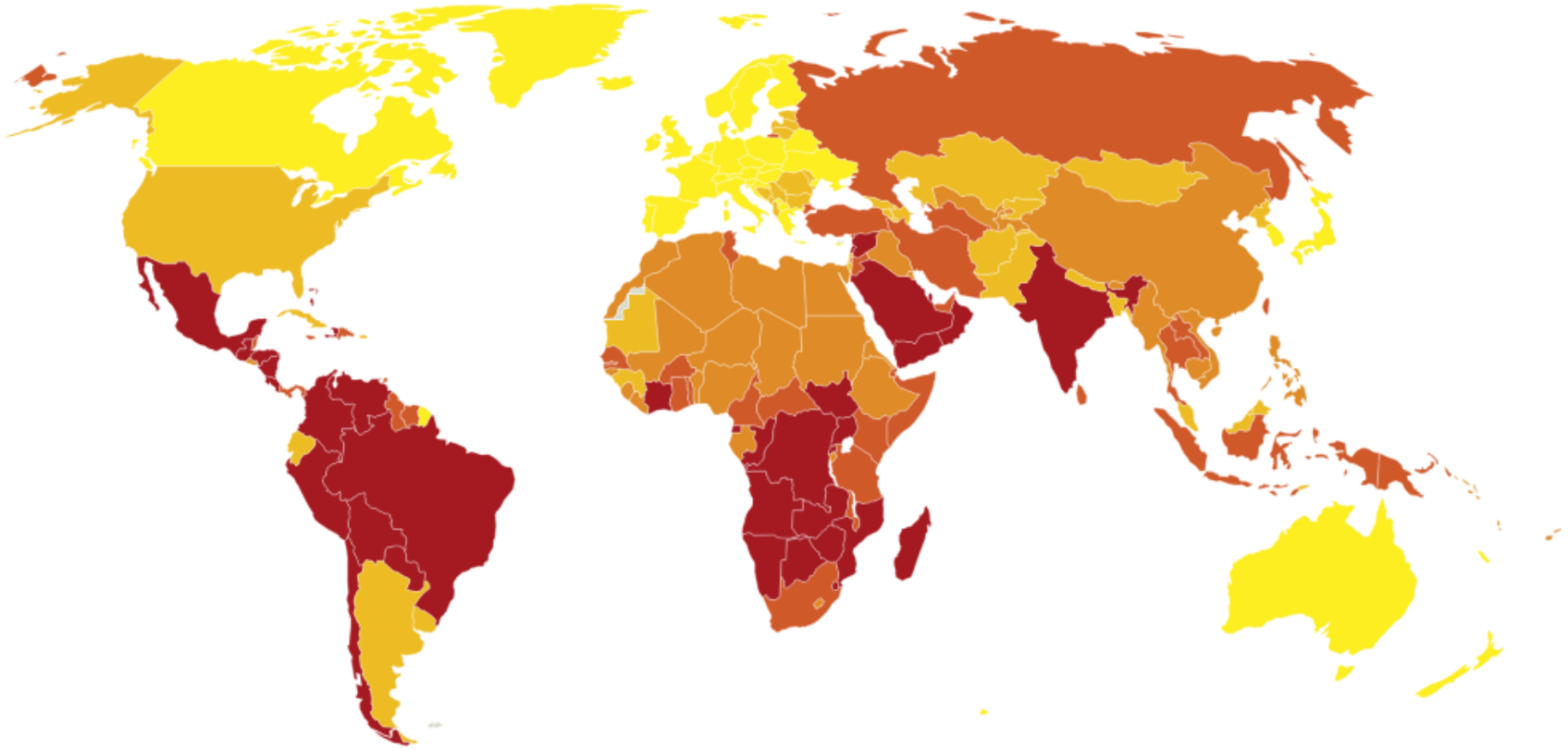


Share of total (%)

9.4 - 13.1 | 13 - 15 | 15 - 18 | 18 - 23 | 23 - 36

Graph provided by www.wid.world

Map 3. Top10/Bottom50 ratio of post-tax national income (2024)

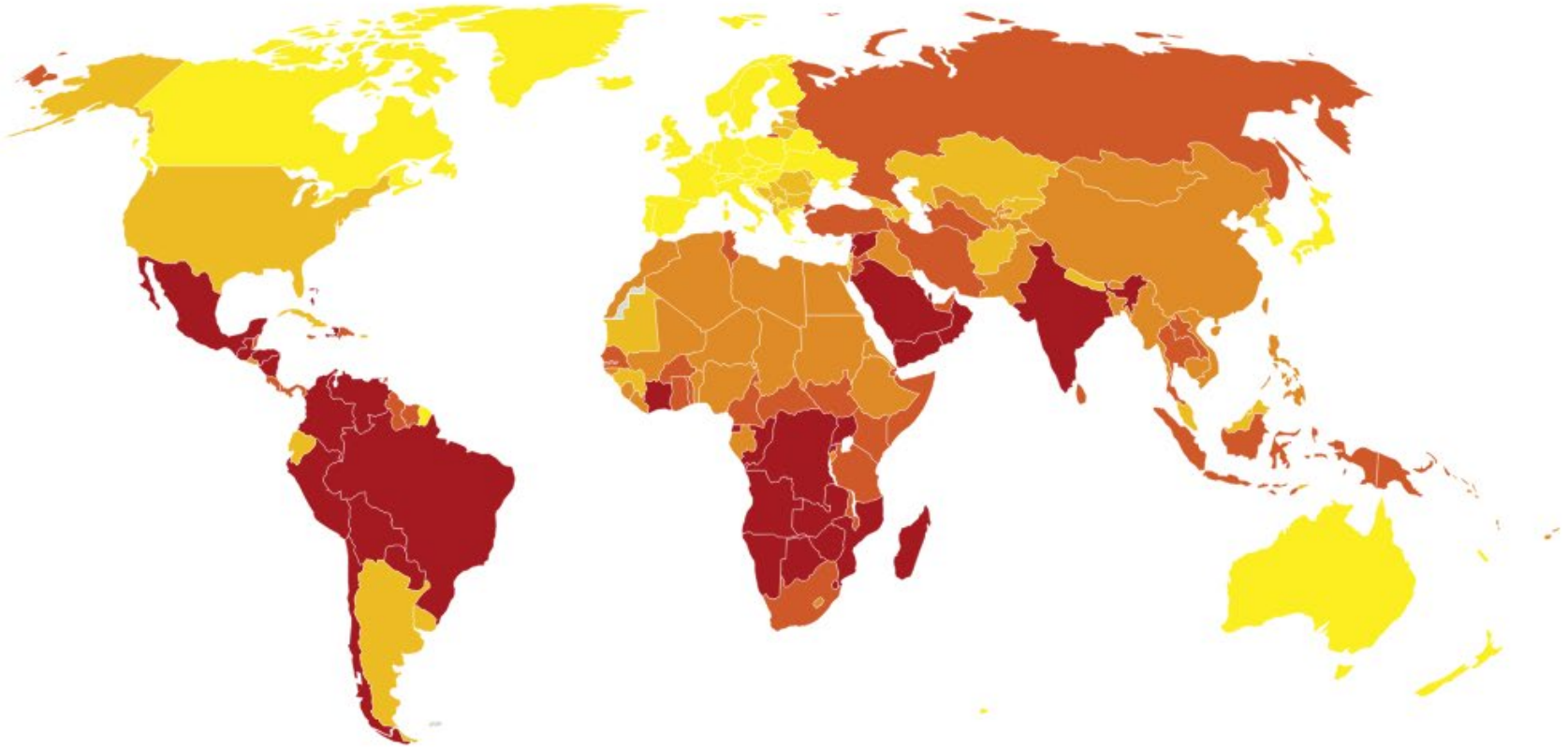


Top 10 / Bottom 50 ratio

2.7 - 6.6 | 6.6 - 11.8 | 12 - 14 | 14 - 19 | 19 - 31

Graph provided by www.wid.world

Map 4. Gini index of post-tax national income (2024)

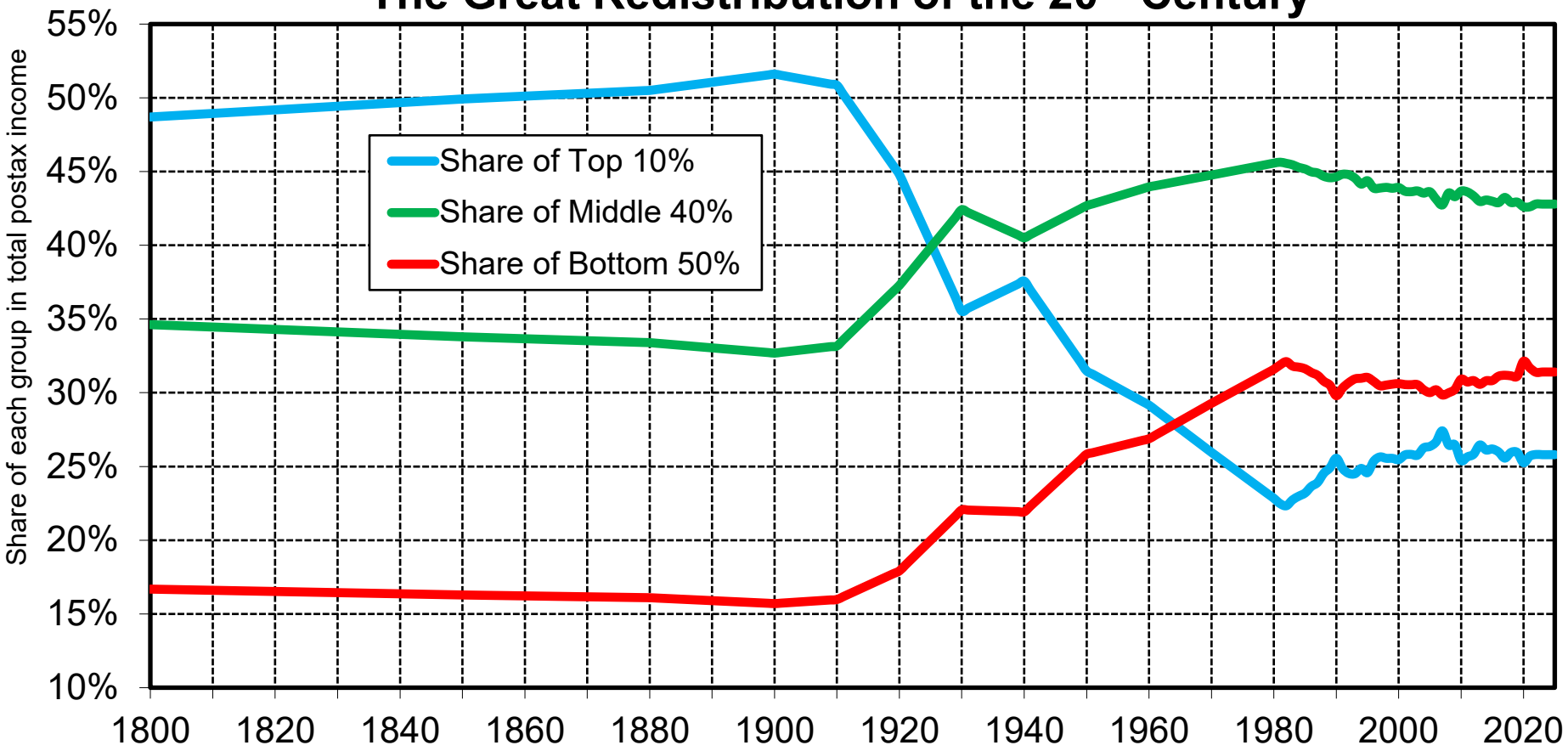


Gini coefficient

0.2 - 0.4 | 0.4 - 0.5 | 0.5 - 0.6 | 0.6 - 0.6 | 0.6 - 0.7

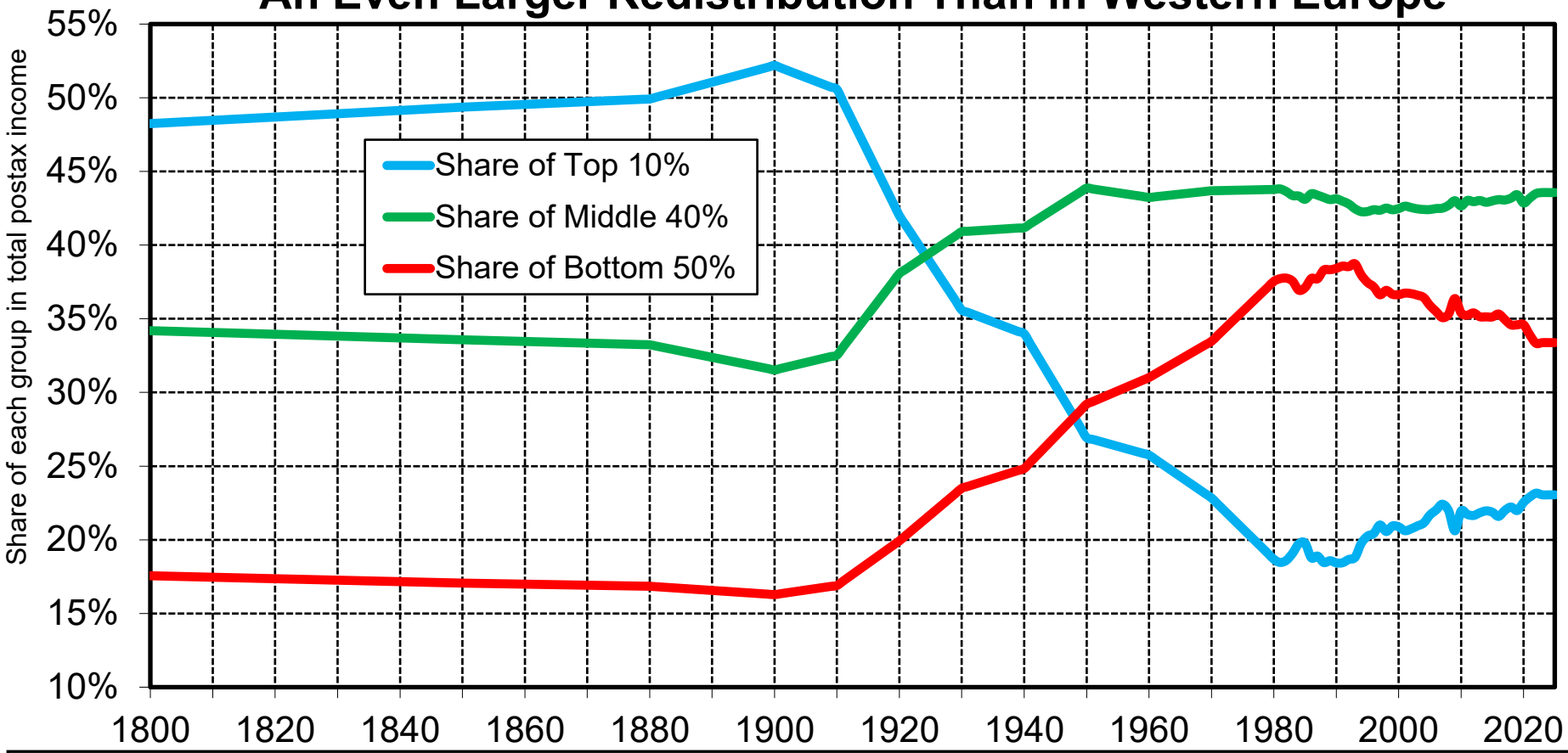
Graph provided by www.wid.world

Fig. 1. Income Shares in Western Europe: The Great Redistribution of the 20th Century



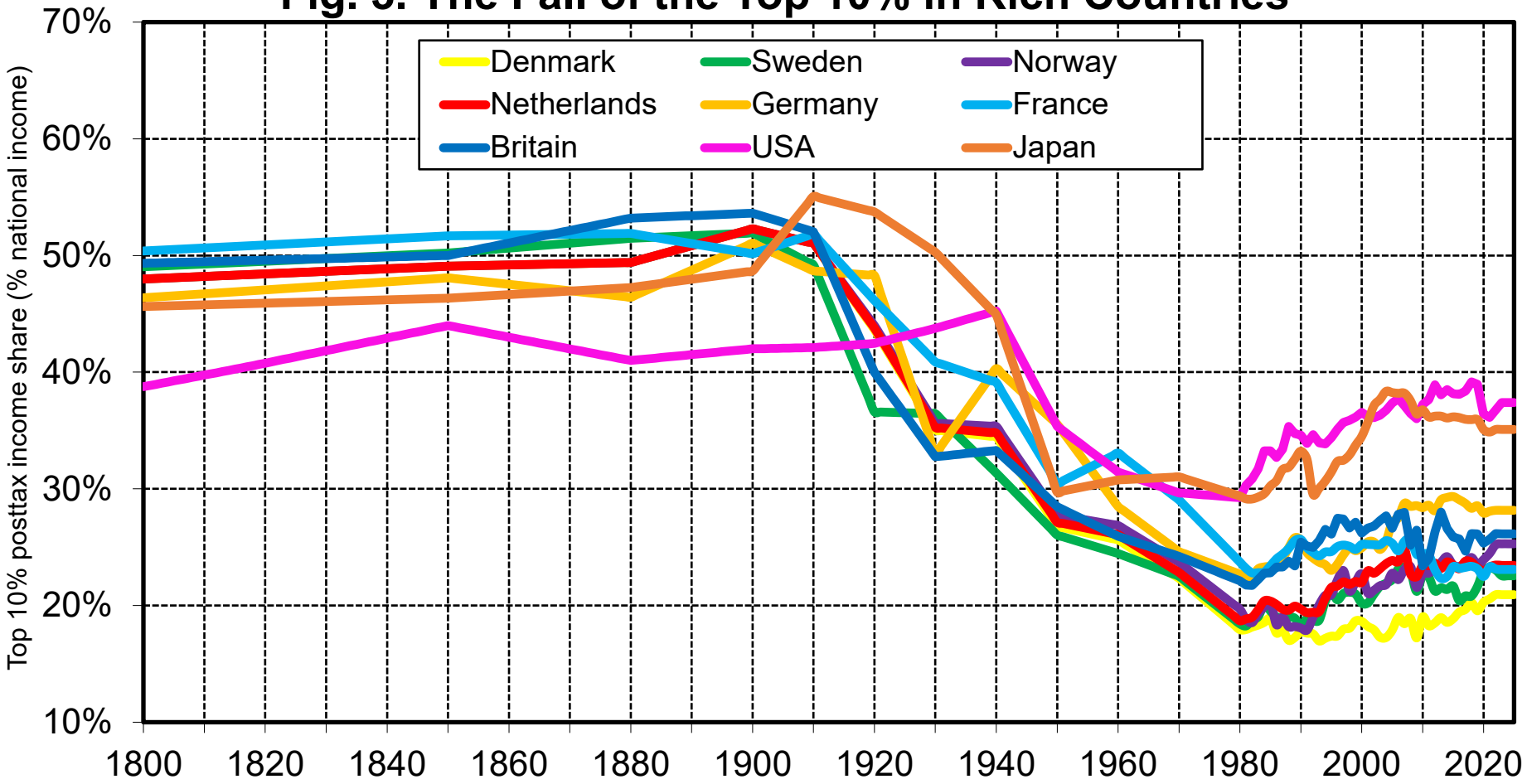
Interpretation. In Western Europe (which we define as the average Germany-France-Britain), the share of the top 10% highest incomes in total posttax income (including capital income - rent, dividends, interest, profits - & labour income - wages, self-employment income, pensions, unemployment benefits, other transfers) fell from over 50% in 1910 to less than 25% in 1980. It has stabilized around 25% since 1980-1990 (with a moderate increase), i.e. at a lower level than the share of the bottom 50% (about 30%). **Sources and series**: wid.world (A1a)

Fig. 2. Income Shares in Nordic Europe: An Even Larger Redistribution Than in Western Europe



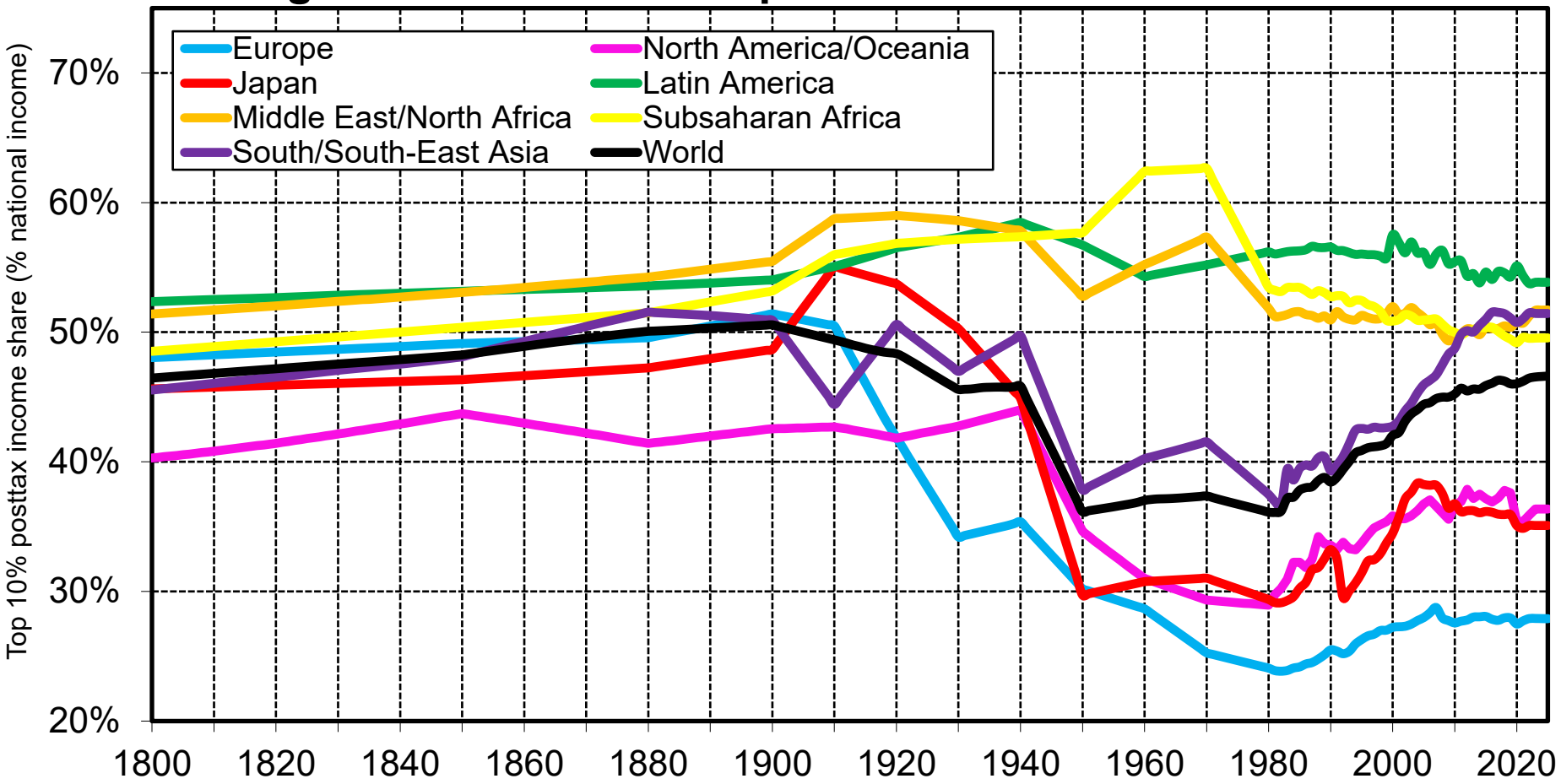
Interpretation. In Nordic Europe (which we define as the average Sweden-Denmark-Norway-Netherlands), the top 10% posttax income share fell from over 50% in 1910 to less than 20% in 1980-1990 (i.e. even more than in Western Europe). It has increased since 1990, but it remains at a lower level than in Western Europe, and at a much lower level than the bottom 50% income share. **Sources and series**: wid.world (A1b)

Fig. 3. The Fall of the Top 10% in Rich Countries



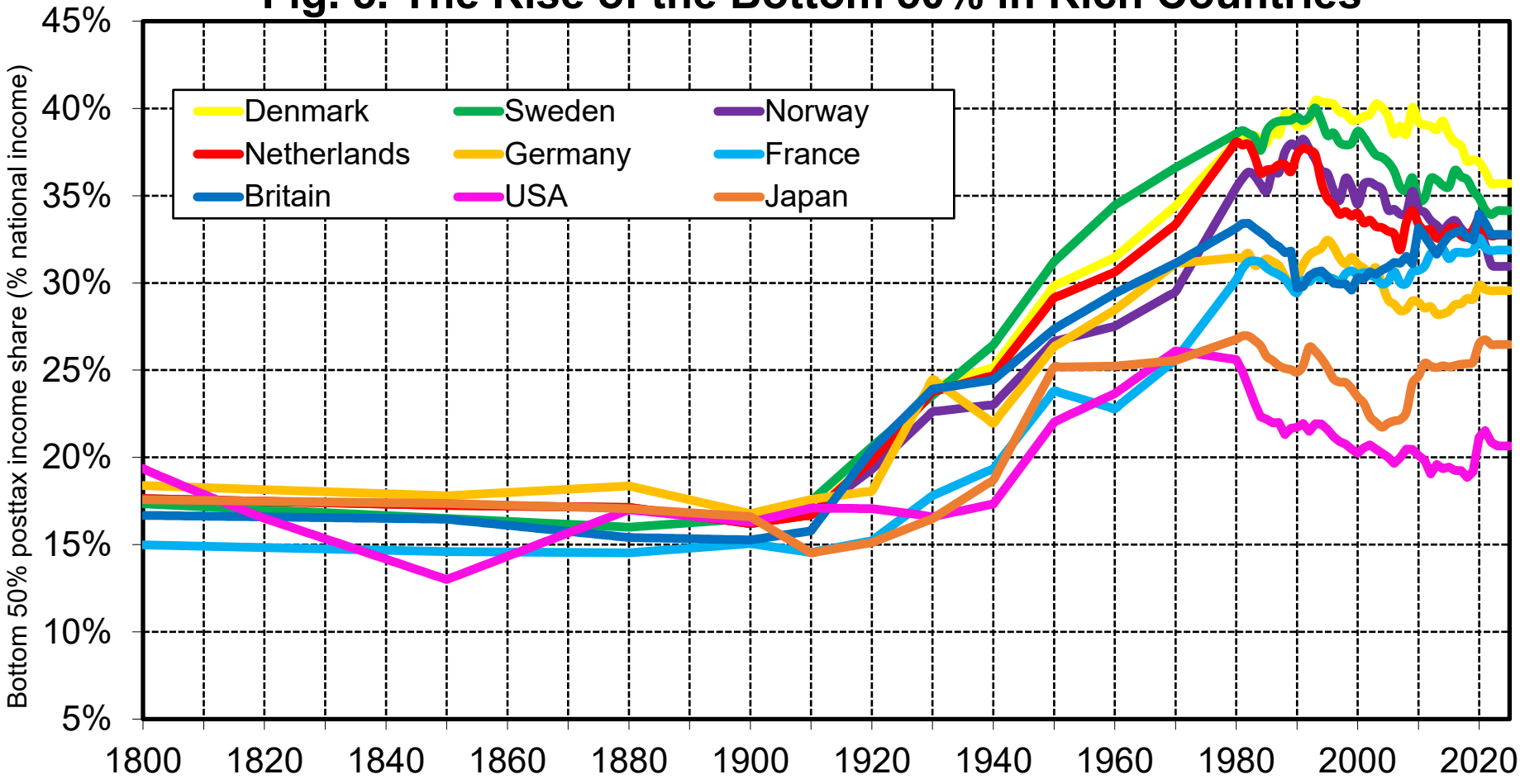
Interpretation. We observe a substantial decline of the top 10% posttax income share in all rich countries in the long-run (including in the USA, and in spite of rising inequality since 1980-1990). The fall was particularly strong in Western and Nordic Europe, and especially in Nordic Europe, with a decline from over 50% of total income in 1900-1910 to about 20-25% in 2010-2025 (with a modest increase since 1980-1990). **Sources and series**: wid.world (A1c)

Fig. 4. The Fall of the Top 10%: Rich Countries vs Others



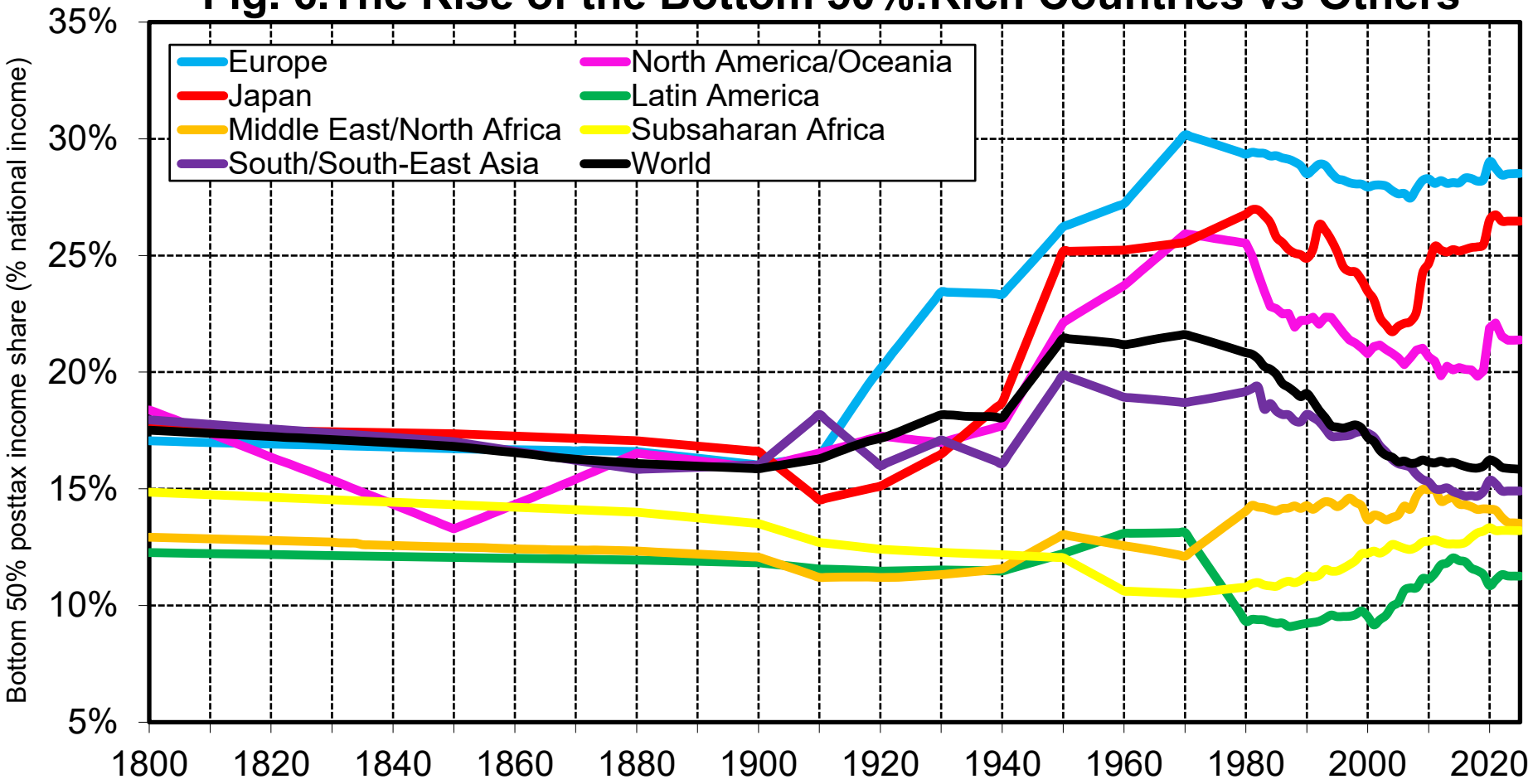
Interpretation. In Europe, the top 10% posttax income share was over 50% of total income until WW1 and was divided by two between 1910 & 1980, before stabilizing around 25-30% since 1980-1990 (with a moderate increase). We also observe a significant long-run decline in North America/Oceania and Japan (from about 45-50% to 35%). In contrast, the top 10% income share almost did not decline at all in the long-run in Latin America, Subsaharan Africa and Middle East/North Africa (around 50-55% throughout the period). **Sources and series**: wid.world (A1d)

Fig. 5. The Rise of the Bottom 50% in Rich Countries



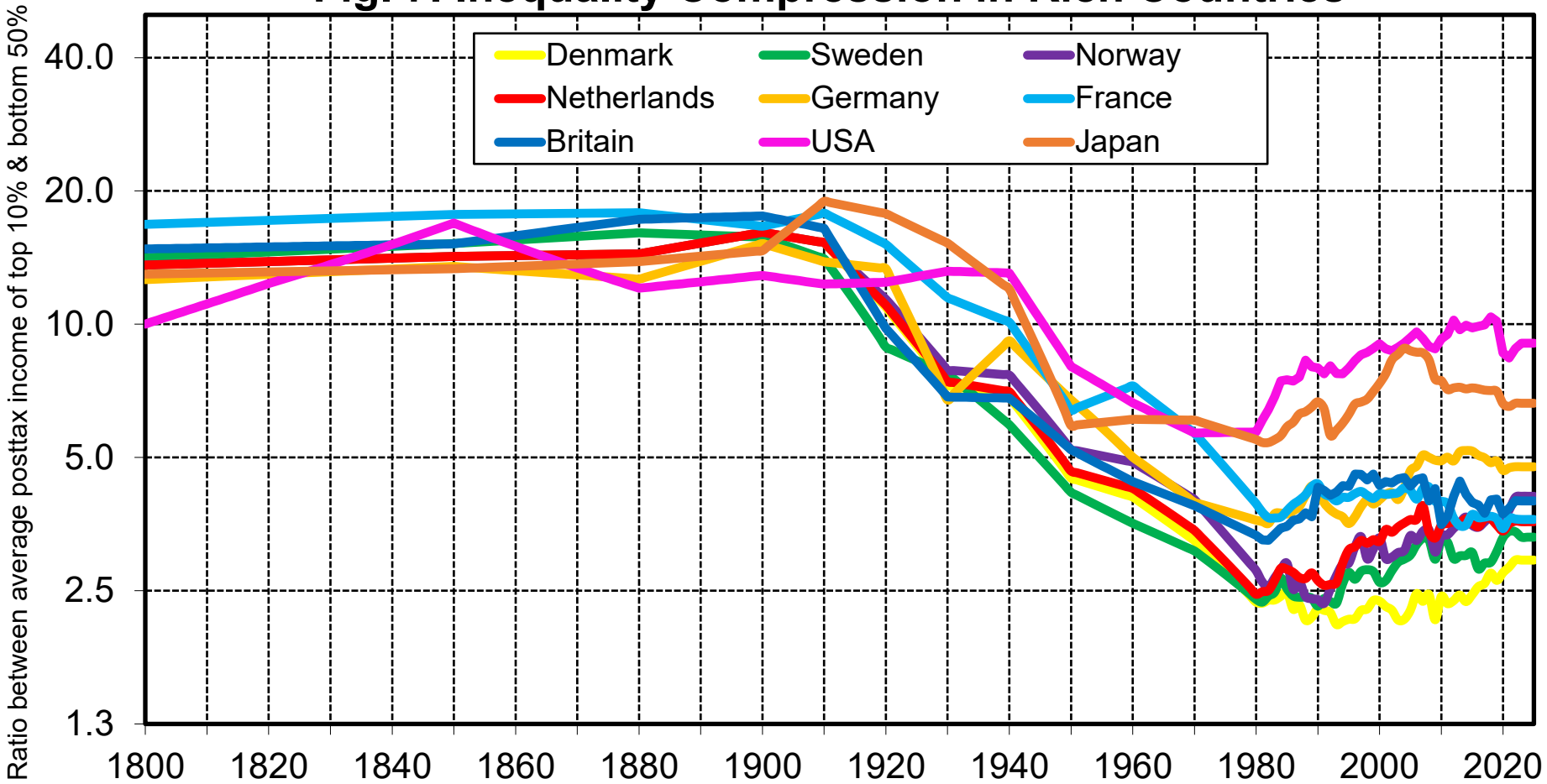
Interpretation. We observe a substantial rise of the bottom 50% posttax income share in all rich countries over the past 100 years (including in the USA, and in spite of rising inequality since 1980-1990). The rise was particularly strong in Western and Nordic Europe, and especially in Nordic Europe, with an increase from from about 15% of total income in 1900-1910 to about 30-40% in 2010-2025 (with a modest decline since 1980-1990). **Sources and series**: wid.world (A1e)

Fig. 6.The Rise of the Bottom 50%:Rich Countries vs Others



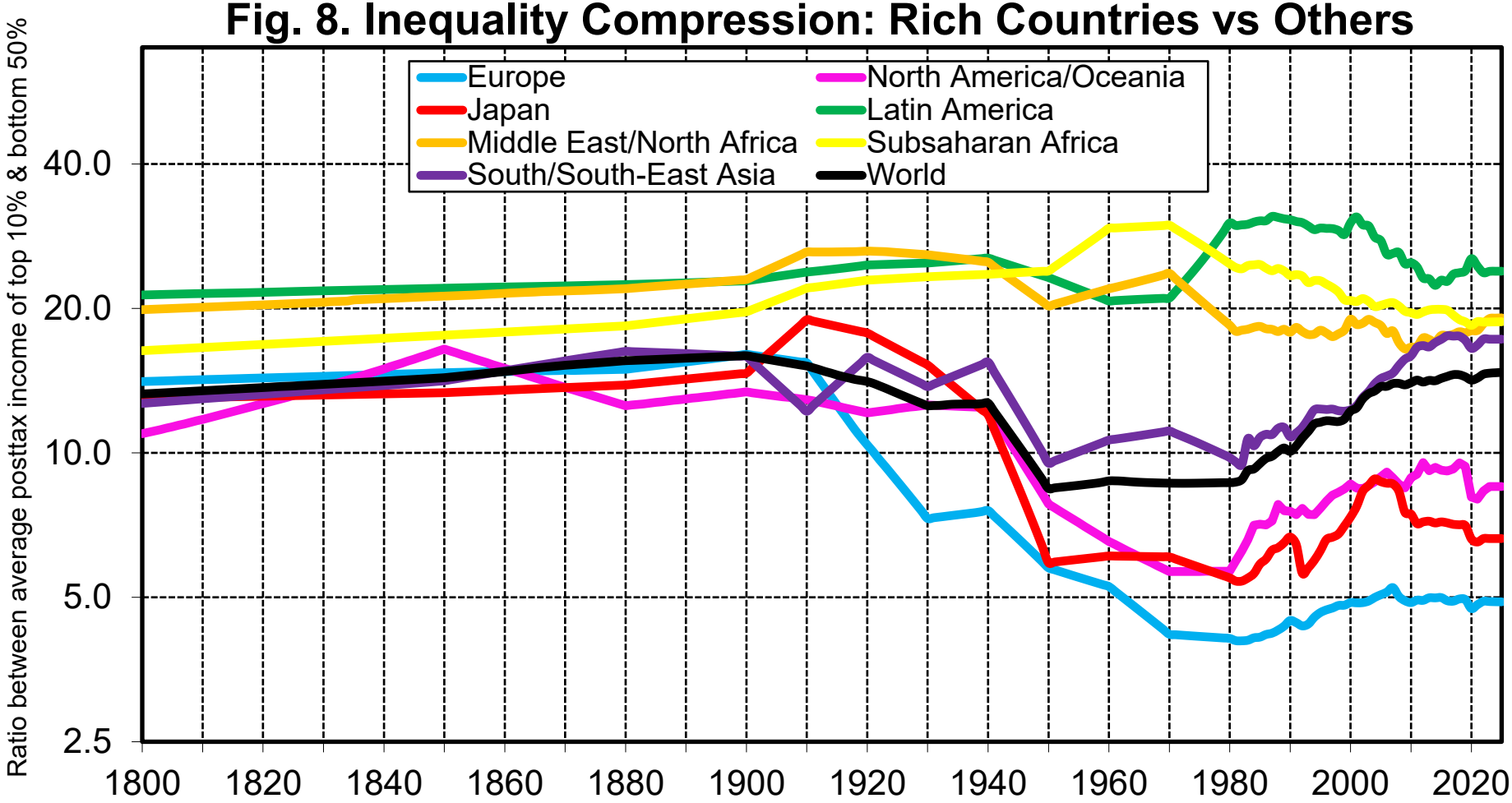
Interpretation. In Europe, the bottom 50% posttax income share rose from about 15% until 1910 to about 30% by 1980, before stabilizing around 30% since 1980-1990 (with a moderate decline). We also observe a significant long-run rise in North America/Oceania and Japan (from about 15% to 20-25%). In contrast, the bottom 50% income share almost did not rise at all in the long-run in Latin America, Subsaharan Africa and Middle East/North Africa (around 10-15% throughout the period). **Sources and series**: wid.world (A1f)

Fig. 7. Inequality Compression in Rich Countries



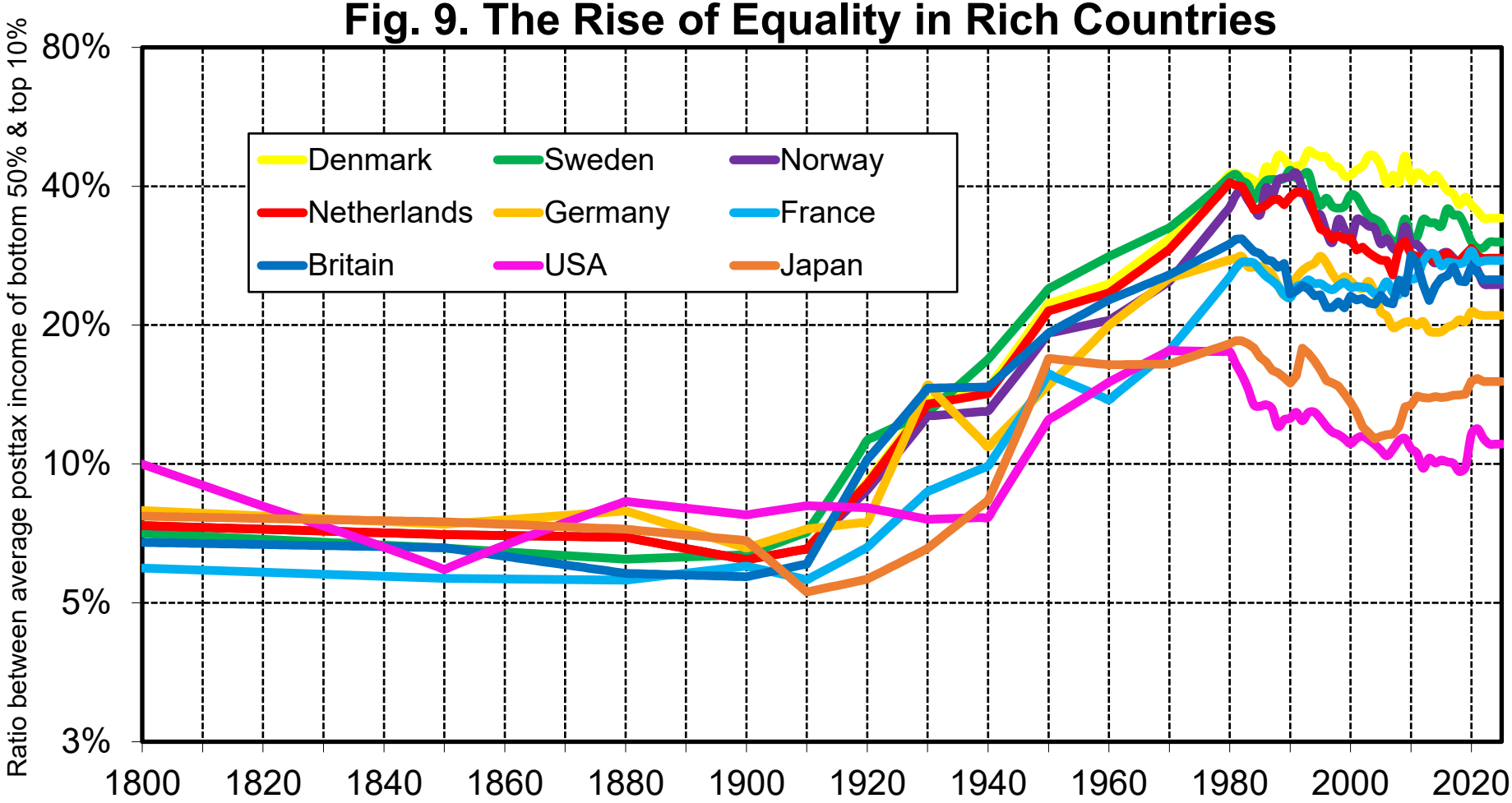
Interpretation. The long-run compression of the income scale has been particularly strong in Western and Nordic Europe, and especially in Nordic Europe. E.g. the T10/B50 income ratio between the average posttax incomes of the top 10% and bottom 50% fell from about 15-20 in all countries before WW1 to about 2.5-3 in recent decades in Sweden, Denmark, Norway and the Netherlands (and around 4-5 in Germany, France and Britain). We also observe a substantial long-run compression of the income scale in other rich countries, including US and Japan (with a ratio T10/B50 around 7-9 in recent decades), albeit of smaller magnitude. **Sources and series**: wid.world (A2a)

Fig. 8. Inequality Compression: Rich Countries vs Others



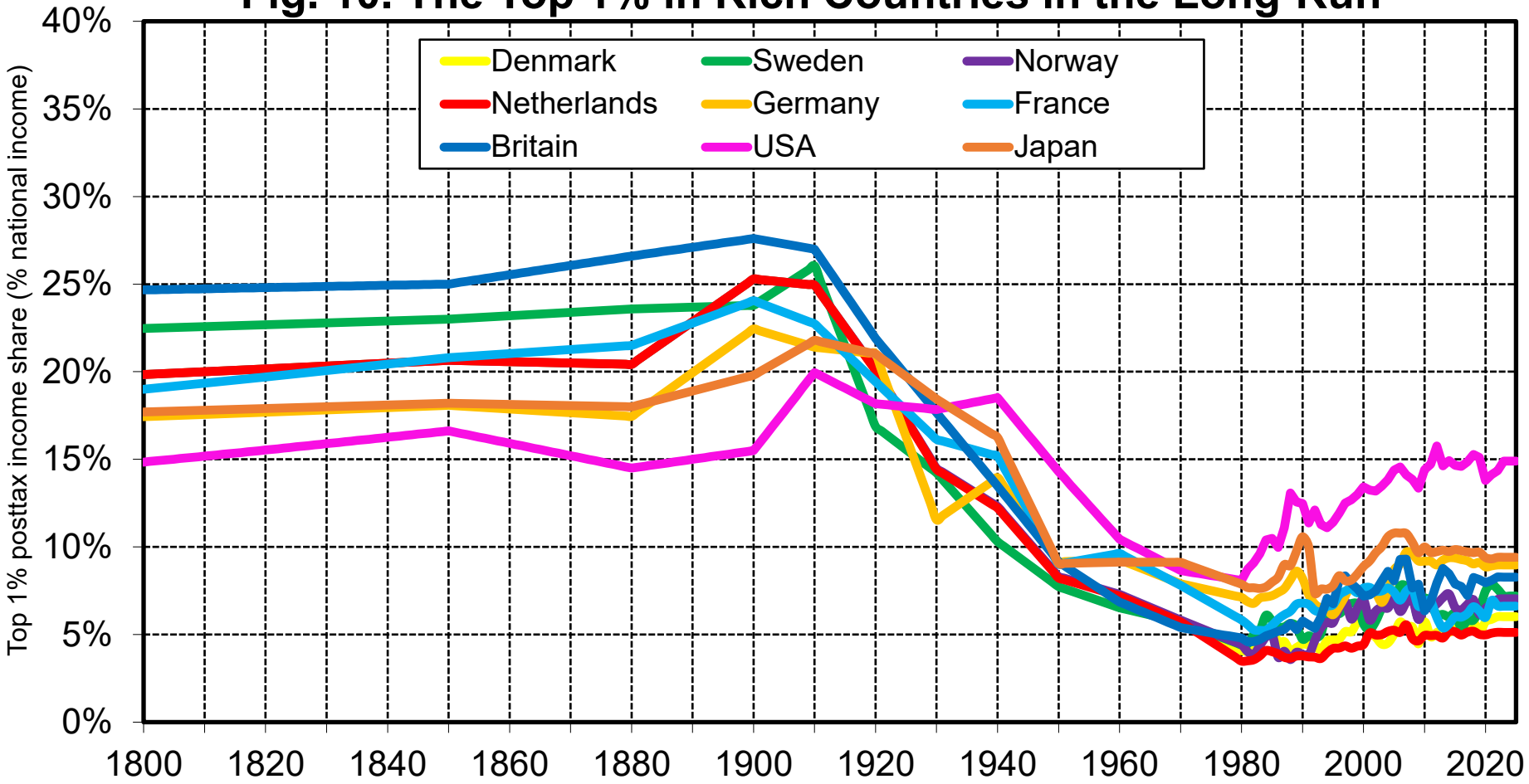
Interpretation. The income scale was substantially compressed during the 20th century in the world's richest countries. I.e. the ratio T10/B50 between the average posttax incomes of the top 10% and the bottom 50% was about 15-20 in Europe, North America/Oceania and Japan until WW1, and it is about 5 in Europe and 6-8 in NAOC and Japan in 2020-2025. In contrast, the 10/B50 ratios almost did not change at all in the long-run in Latin America, Subsaharan Africa or Middle East/North Africa (around 20 throughout the period). **Sources and series**: wid.world (A2b)

Fig. 9. The Rise of Equality in Rich Countries



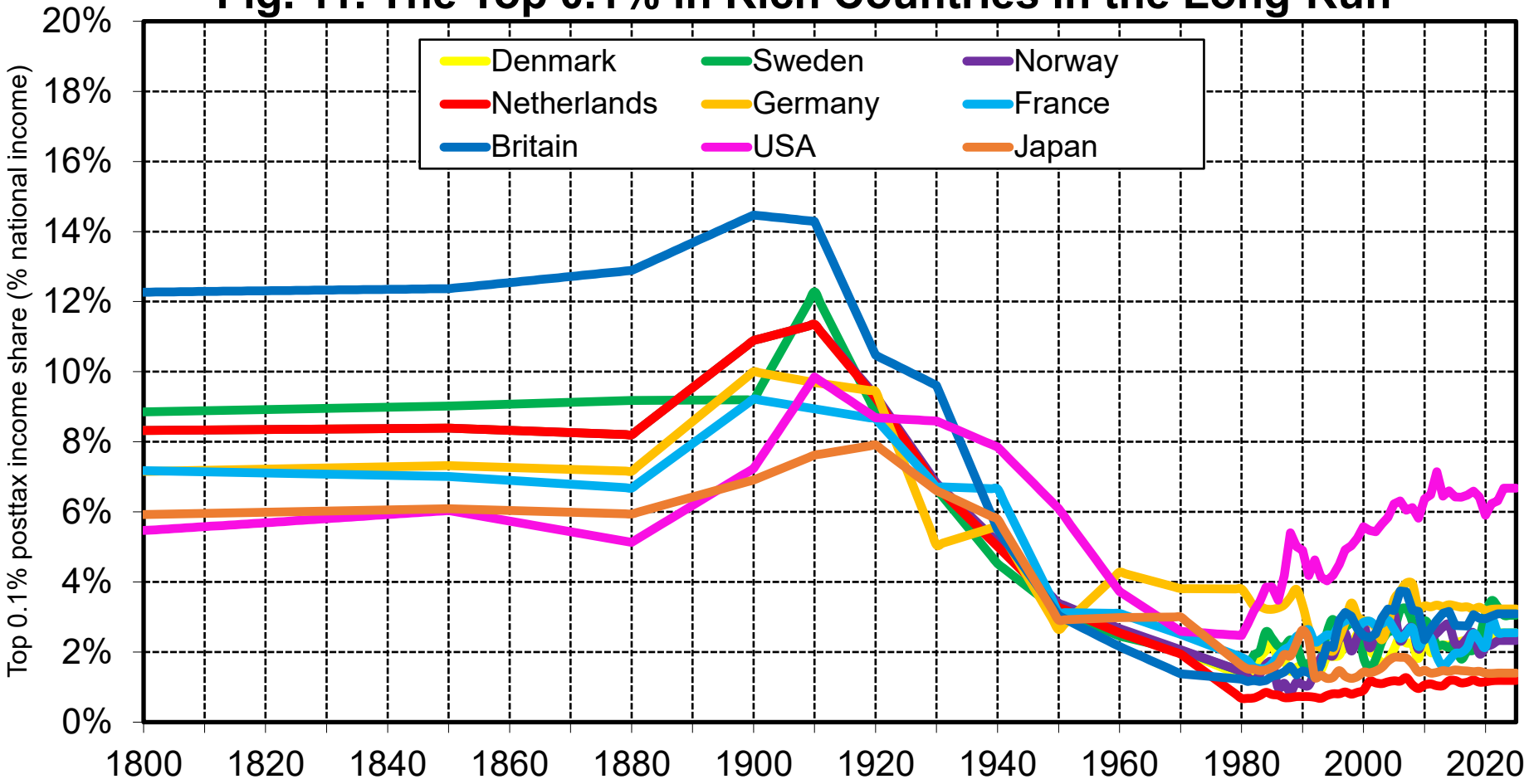
Interpretation. The average posttax income of the bottom 50% was about 5-8% of the average posttax income of the top 10% in most countries before WW1 (corresponding to an income scale of 1-to-15 or 1-to-20). During the 20th century, the ratio between the average posttax income of bottom 50% and top 10% rose to as much as 40% in a number of European countries (corresponding to an income scale of 1-to-2.5). **Sources and series**: wid.world (A2c)

Fig. 10. The Top 1% in Rich Countries in the Long-Run



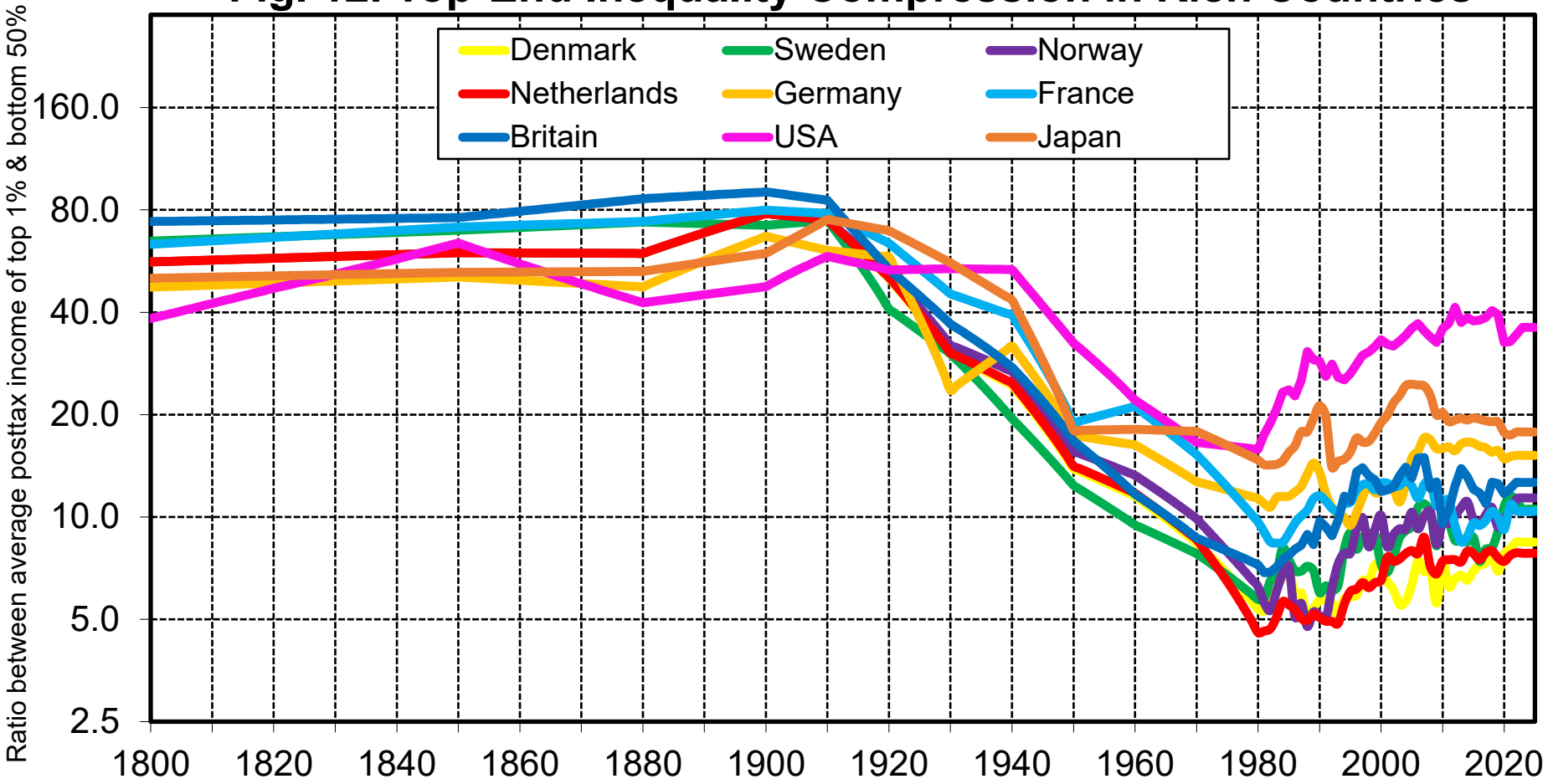
Interpretation. We observe a decline of the top 1% posttax income share in all rich countries in the long-run (including in the USA, and in spite of a large rise in inequality since 1980-1990). The fall was particularly strong in Western and Nordic Europe, and especially in Nordic Europe, with a decline from over 20% of total income in 1900-1910 to about 5-10% in 2010-2025 (in spite of the significant increase since 1980-1990). **Sources and series**: wid.world (A1n)

Fig. 11. The Top 0.1% in Rich Countries in the Long-Run



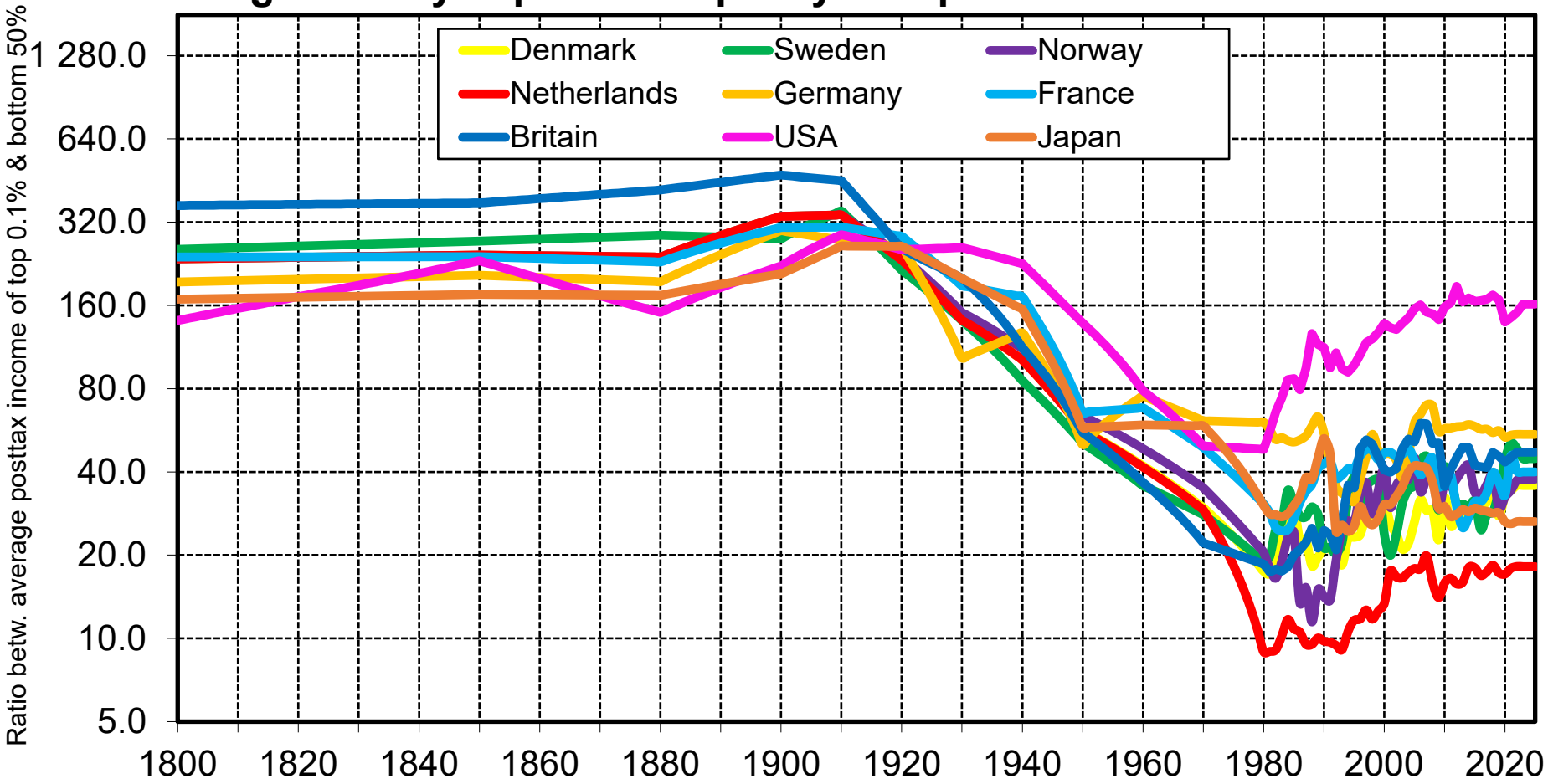
Interpretation. We observe a decline of the top 0.1% posttax income share in all rich countries in the long-run (except in the USA, where this has been almost completely undone by the large rise in inequality since 1980-1990). The fall was particularly strong in Western and Nordic Europe, and especially in Nordic Europe, with a decline from about 10-12% of total income in 1900-1910 to about 1-3% in 2010-2025 (in spite of the significant increase since 1980-1990). **Sources and series**: wid.world (A1o)

Fig. 12. Top-End Inequality Compression in Rich Countries



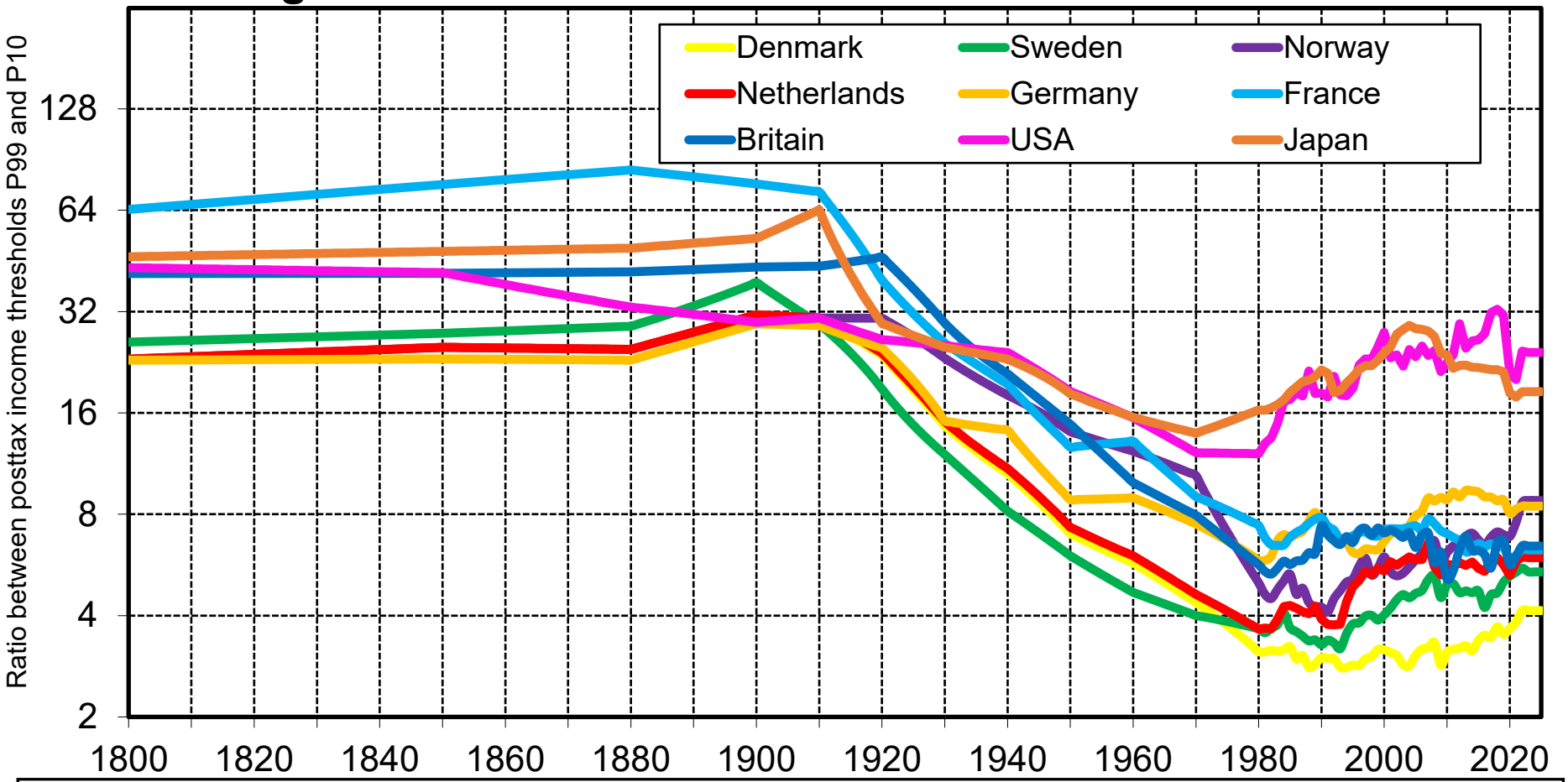
Interpretation. The long-run compression of the income scale has been particularly strong in social-semocratic Europe, and especially in nordic countries. E.g. the T1/B50 income ratio between the average posttax incomes of the top 1% and bottom 50% fell from about 60-80 in all countries before WW1 to about 5-8 in recent decades in Sweden, Denmark, Norway and the Netherlands (and around 10-15 in Germany, France and Britain). We also observe a long-run compression of the T1/B50 in other rich countries, albeit of smaller magnitude (especially in the USA, where recent rise in inequality has almost completely offset the long-run fall). **Sources and series**: wid.world (A2i)

Fig. 13. Very Top-End Inequality Compression in Rich Countries



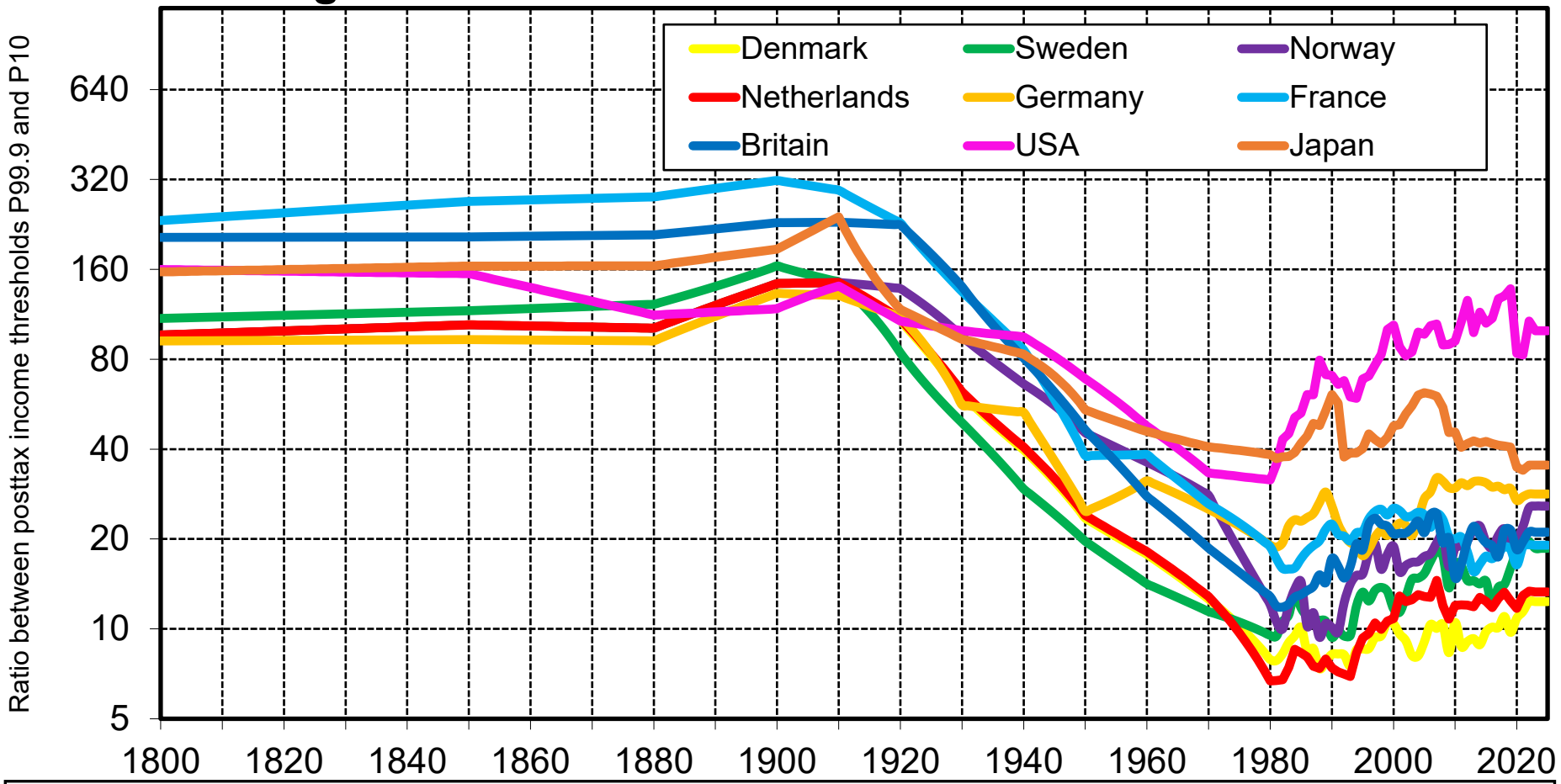
Interpretation. The long-run compression of the income scale has been particularly strong in social-semocratic Europe, and especially in Nordic countries. E.g. the T0.1/B50 income ratio between the average posttax incomes of the top 0.1% and bottom 50% fell from about 300-400 in all countries before WW1 to about 10-20 in recent decades in Sweden, Denmark, Norway and the Netherlands (and around 20-50 in Germany, France and Britain). We also observe a long-run compression of the T0.1/B50 in other rich countries, albeit of smaller magnitude (especially in the USA, where recent rise in inequality has almost completely offset the long-run fall). **Sources and series**: wid.world (A2j)

Fig. 14. The Fall of the P99/P10 Ratio in Rich Countries



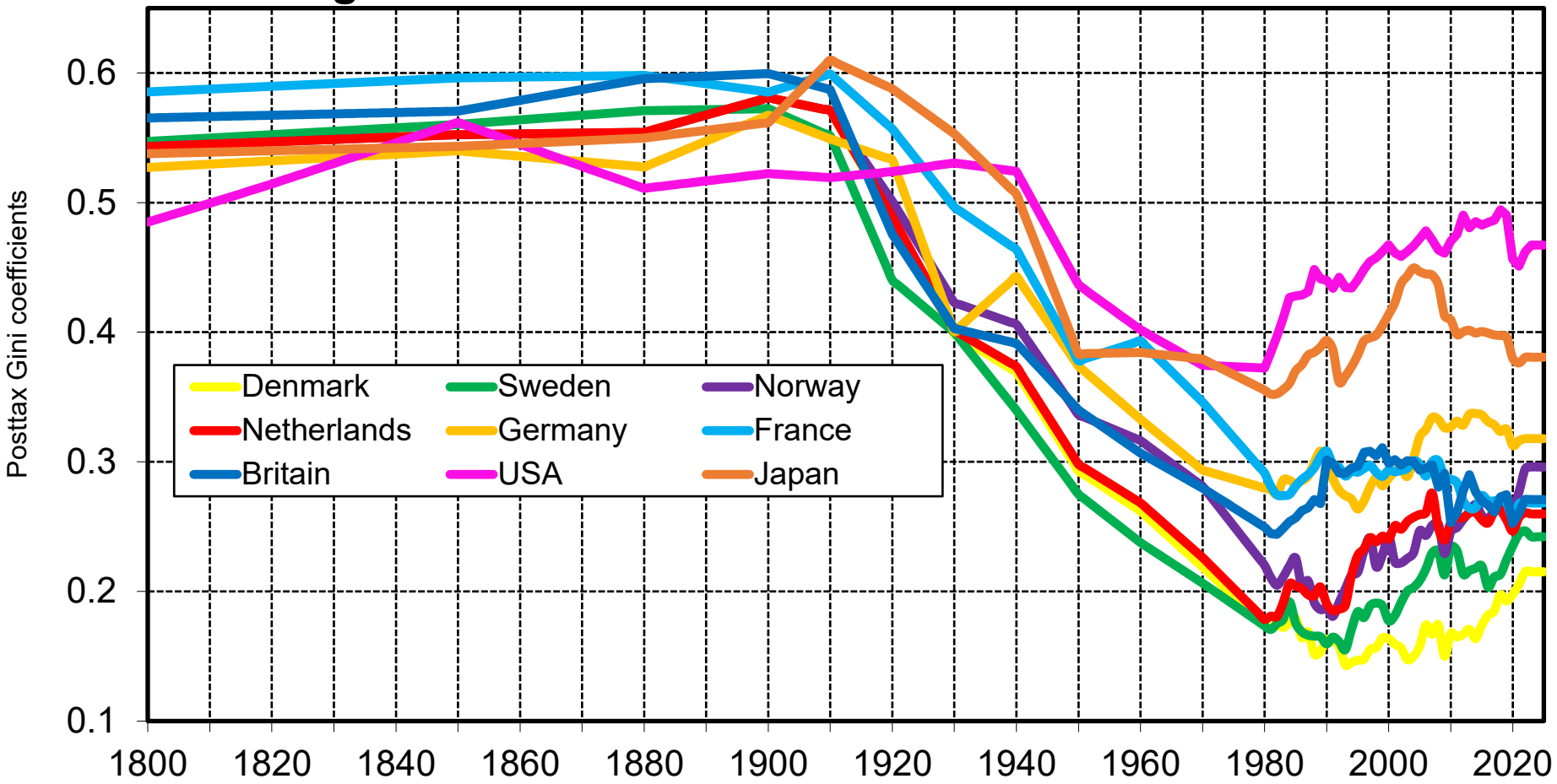
Interpretation. The long-run compression of the income scale has been particularly strong in social-semocratic Europe, and especially in Nordic countries. E.g. the P99/P10 ratio between the 99th and 10th percentile thresholds fell from about 30-60 in all countries before WW1 to about 3-6 in recent decades in Sweden, Denmark, Norway and the Netherlands (and around 5-8 in Germany, France and Britain). We also observe a long-run compression of the P99/P10 ratio in other rich countries, albeit of much smaller magnitude (especially in the USA, where recent rise in inequality has almost completely offset the long-run fall). **Sources and series**: wid.world (A4a)

Fig. 15. The Fall of the P99.9/P10 Ratio in Rich Countries



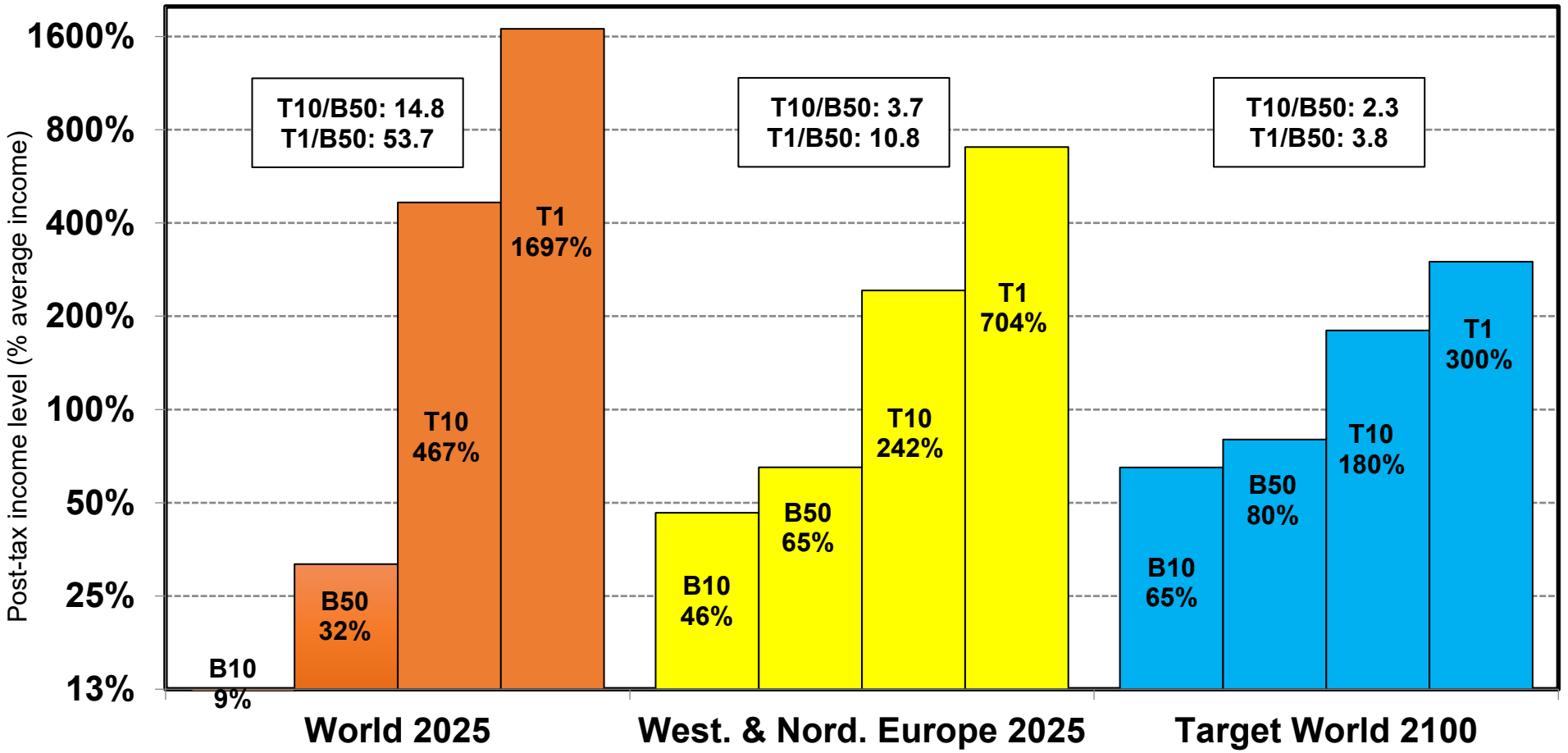
Interpretation. The long-run compression of the income scale has been particularly strong in social-semocratic Europe, and especially in Nordic countries. E.g. the P99.9/P10 ratio between the 99.9th and 10th percentile thresholds fell from about 150-250 in all countries before WW1 to about 8-15 in recent decades in Sweden, Denmark, Norway and the Netherlands (and around 15-20 in Germany, France and Britain). We also observe a long-run compression of the P99.9/P10 ratio in other rich countries, albeit of much smaller magnitude (especially in the USA, where recent rise in inequality has almost completely offset the long-run fall). **Sources and series**: wid.world (A4b)

Fig. 16. Posttax Gini Coefficients in Rich Countries



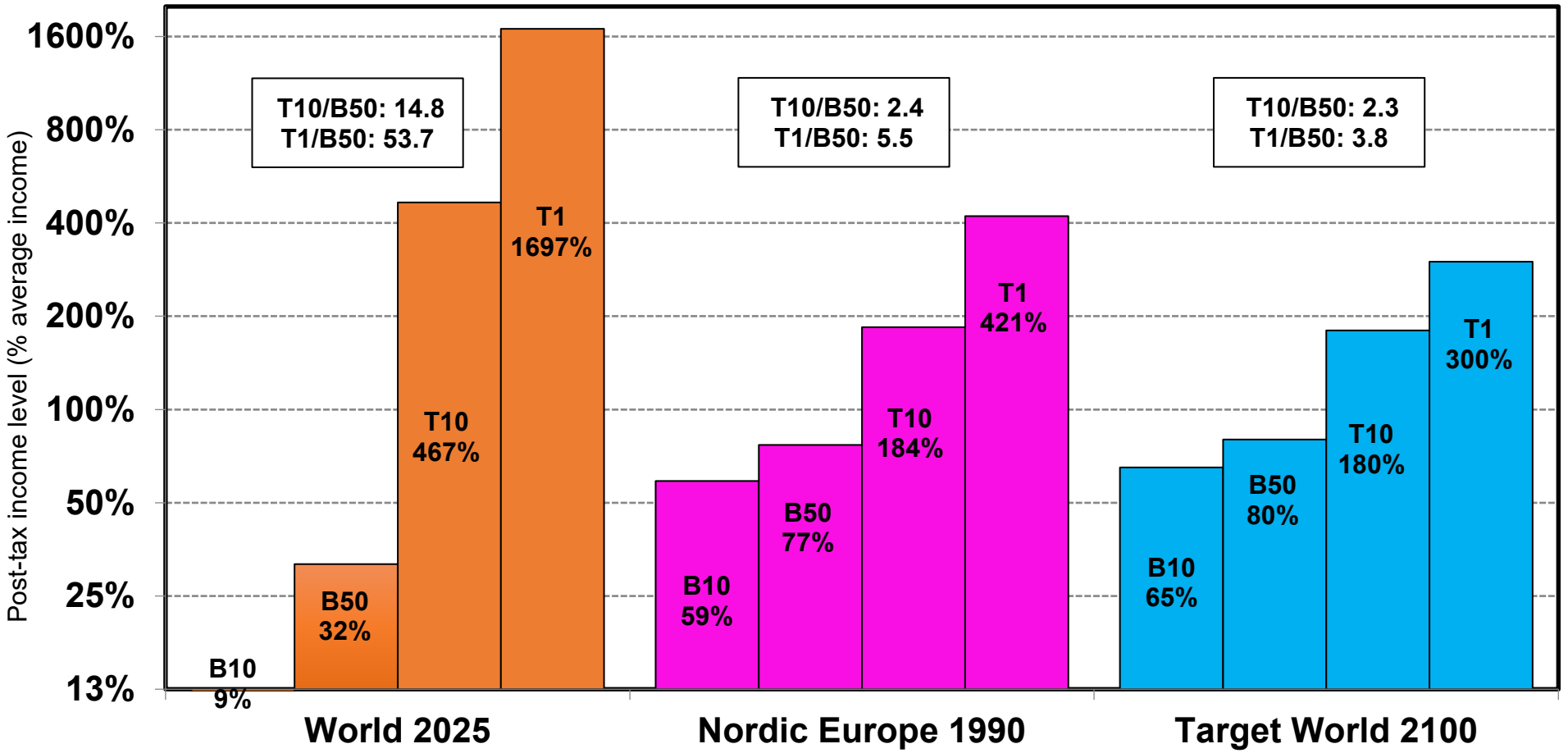
Interpretation. The long-run compression of the income scale has been particularly strong in Western and Nordic Europe, and especially in Nordic Europe. E.g. the posttax Gini coefficient fell from about 0.5-0.6 in all countries before WW1 to about 0.15-0.25 in recent decades in Sweden, Denmark, Norway and the Netherlands (and around 0.25-0.3 in Germany, France and Britain). We also observe a substantial long-run compression of the posttax Gini coefficient in other rich countries, including US and Japan (with a Gini coefficient around 0.4-0.5 in recent decades), albeit of smaller magnitude. **Sources and series**: wid.world (A6a)

Fig. 17. The Proper Level of the Income Scale: Present & Future



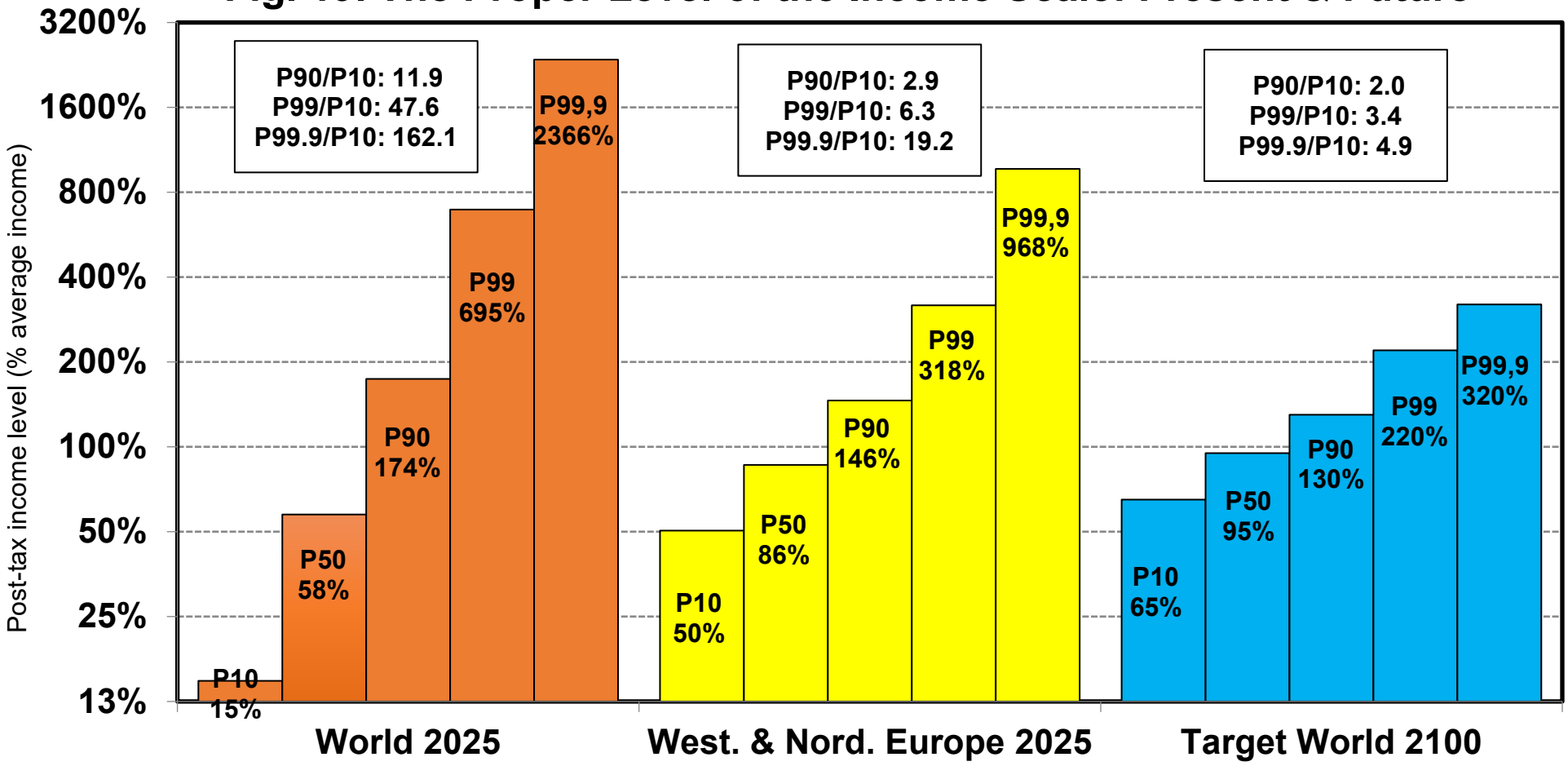
Interpretation. In Western and Nordic Europe 2025 (average DE FR GB SE DK NO NL), the T10/B50 ratio between the posttax average income of the top 10% and the bottom 50% is equal to 3.7 and the T1/B50 ratio is equal to 10.8. In the target level inequality for the world 2100, the T10/B50 ratio is equal to 2.3 and the T1/B50 ratio is equal to 3.8. **Sources and series**: wid.world (A5a)

Fig. 18. The Proper Level of the Income Scale: Present & Future



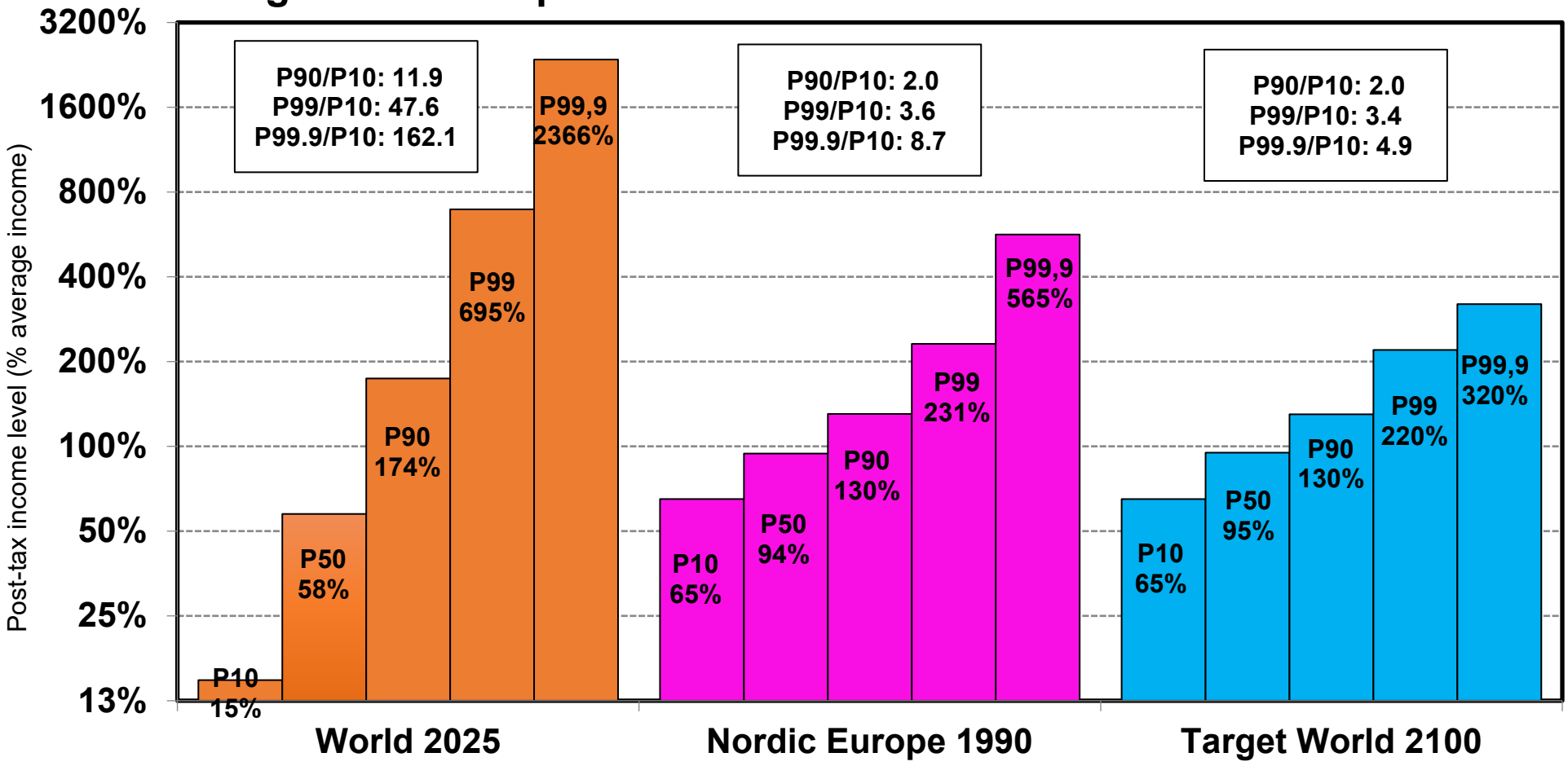
Interpretation. In Nordic Europe 1990 (average SE DK NO NL), the T10/B50 ratio between the posttax average income of the top 10% and the bottom 50% is equal to 2.4 and the T1/B50 ratio is equal to 5.5. In the target level inequality for the world 2100, the T10/B50 ratio is equal to 2.3 and the T1/B50 ratio is equal to 3.8. **Sources and series**: wid.world (A5b)

Fig. 19. The Proper Level of the Income Scale: Present & Future



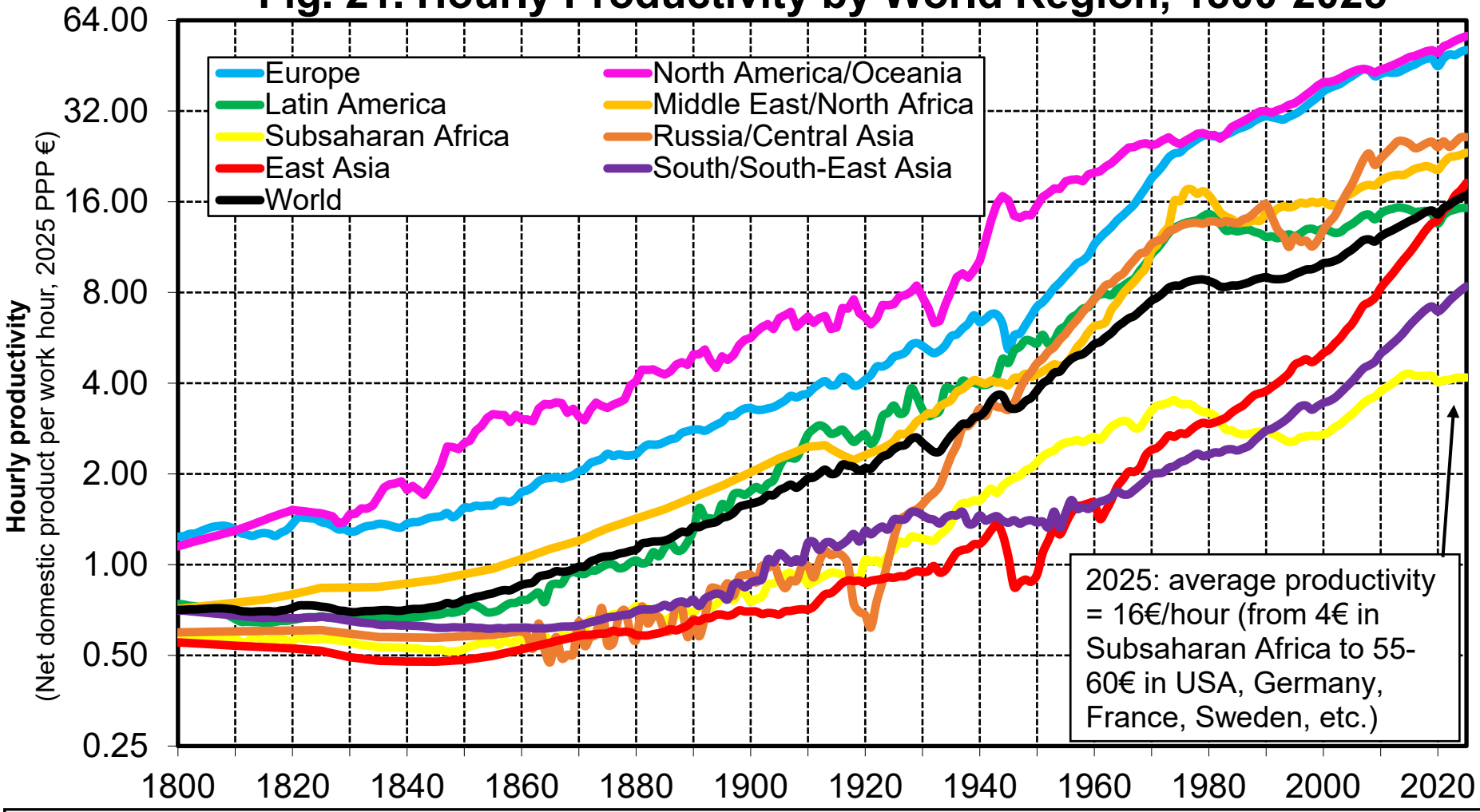
Interpretation. In Europe 2025 (average DE FR GB SE DK NO NL), the posttax P99/P10 income ratio is equal to 6.3 and the P99,9/P10 ratio is equal to 19.2. In the target level inequality for the world 2100, the P99/P10 ratio is equal to 3.4 and the P99,9/P10 ratio is equal to 4.9.
Sources and series: wid.world (A5g)

Fig. 20. The Proper Level of the Income Scale: Present & Future



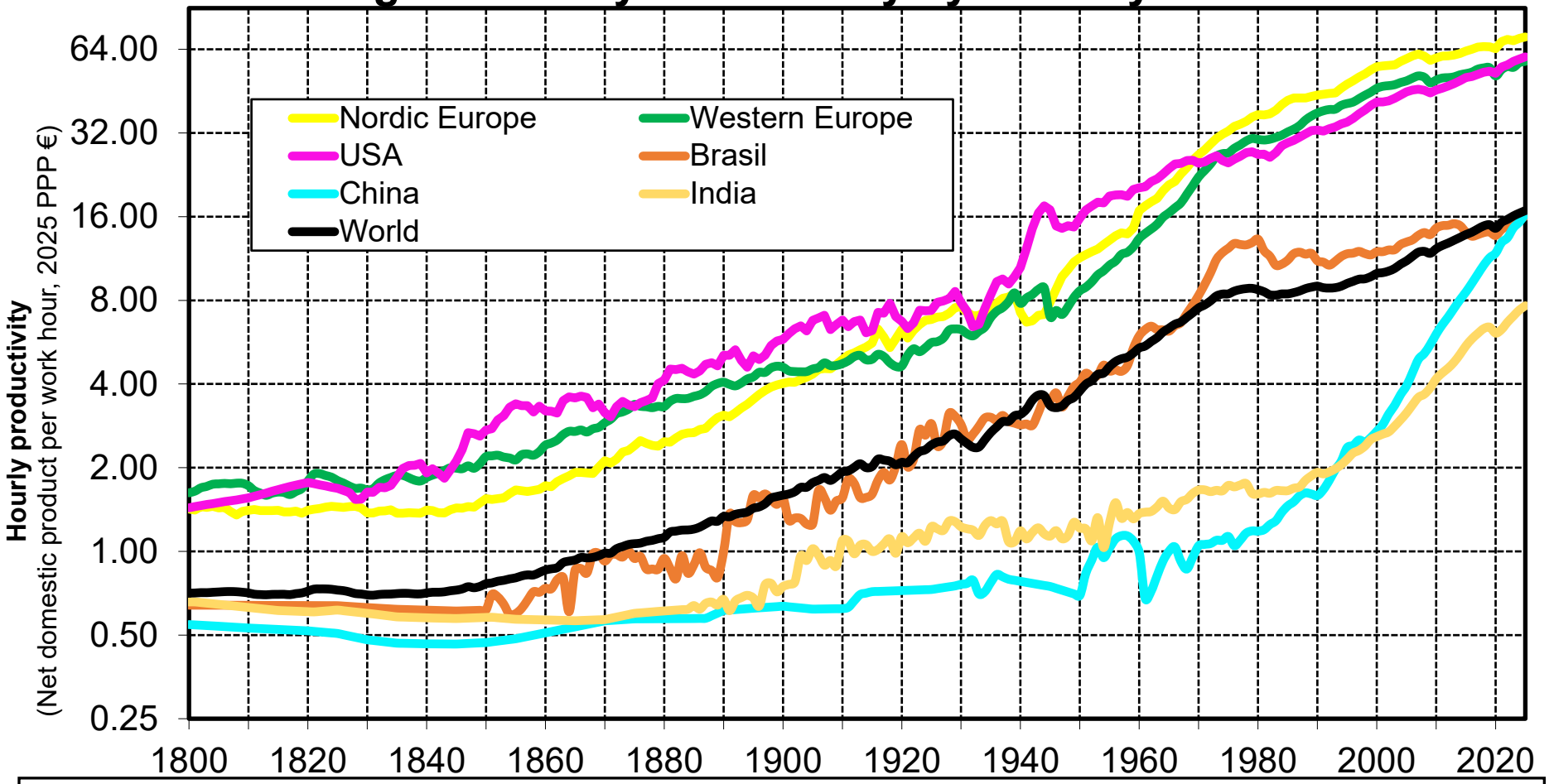
Interpretation. In Nordic Europe 1990 (average SE DK NO NL), the posttax P99/P10 income ratio is equal to 3.6 and the P99,9/P10 ratio is equal to 8.7. In the target level inequality for the world 2100, the P99/P10 ratio is equal to 3.4 and the P99,9/P10 ratio is equal to 4.9.
Sources and series: wid.world (A5h)

Fig. 21. Hourly Productivity by World Region, 1800-2025



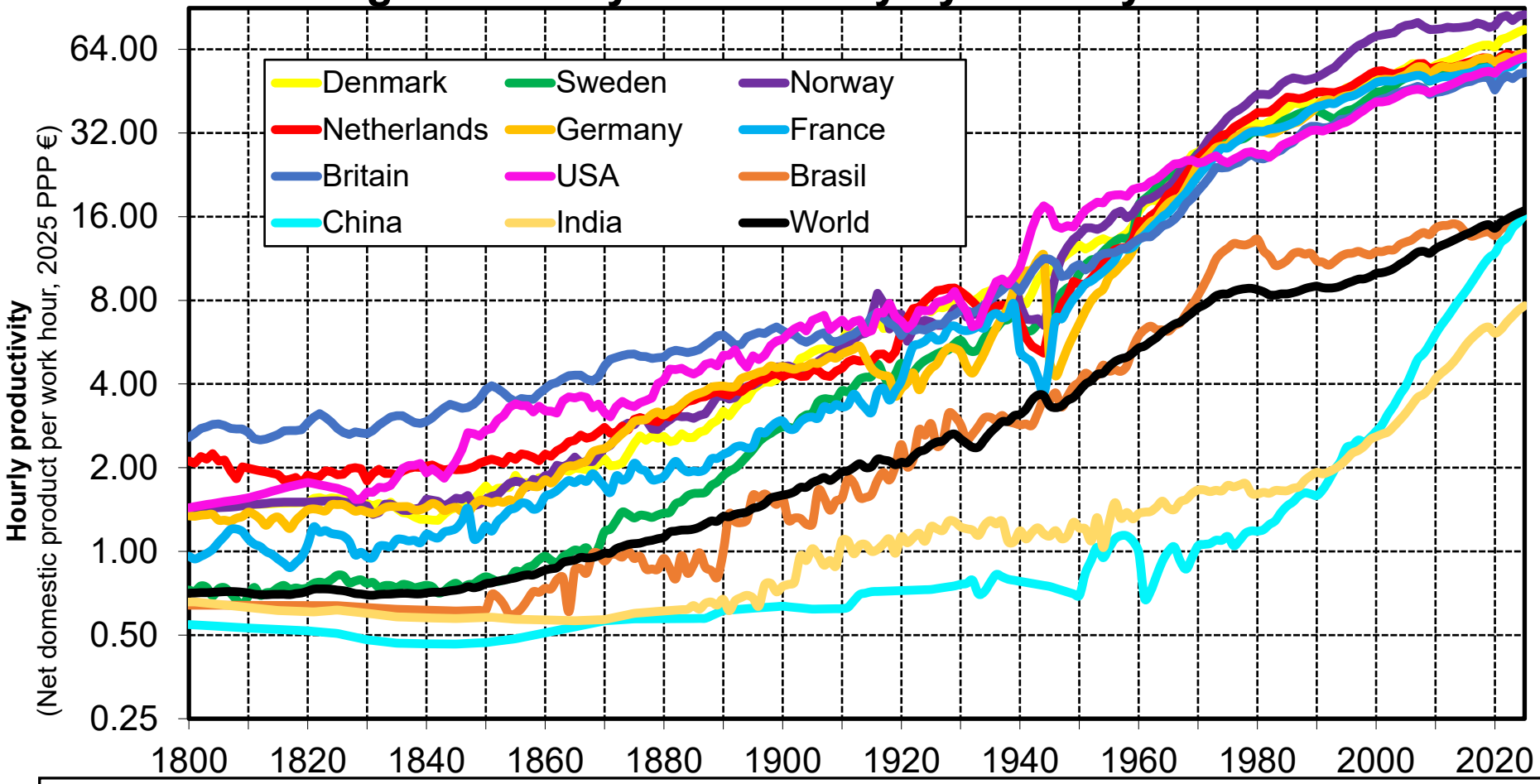
Interpretation. Expressed in 2025 PPP €, hourly productivity (net domestic product per labour hour) rose from about 0.7€ in 1800 to 16€ in 2025 at the global level. Europe's productivity was about half of North America/Oceania level in 1950 and has been approximately the same since 1980-1990. **Sources and series**: wid.world (B1a)

Fig. 22. Hourly Productivity by Country 1800-2025



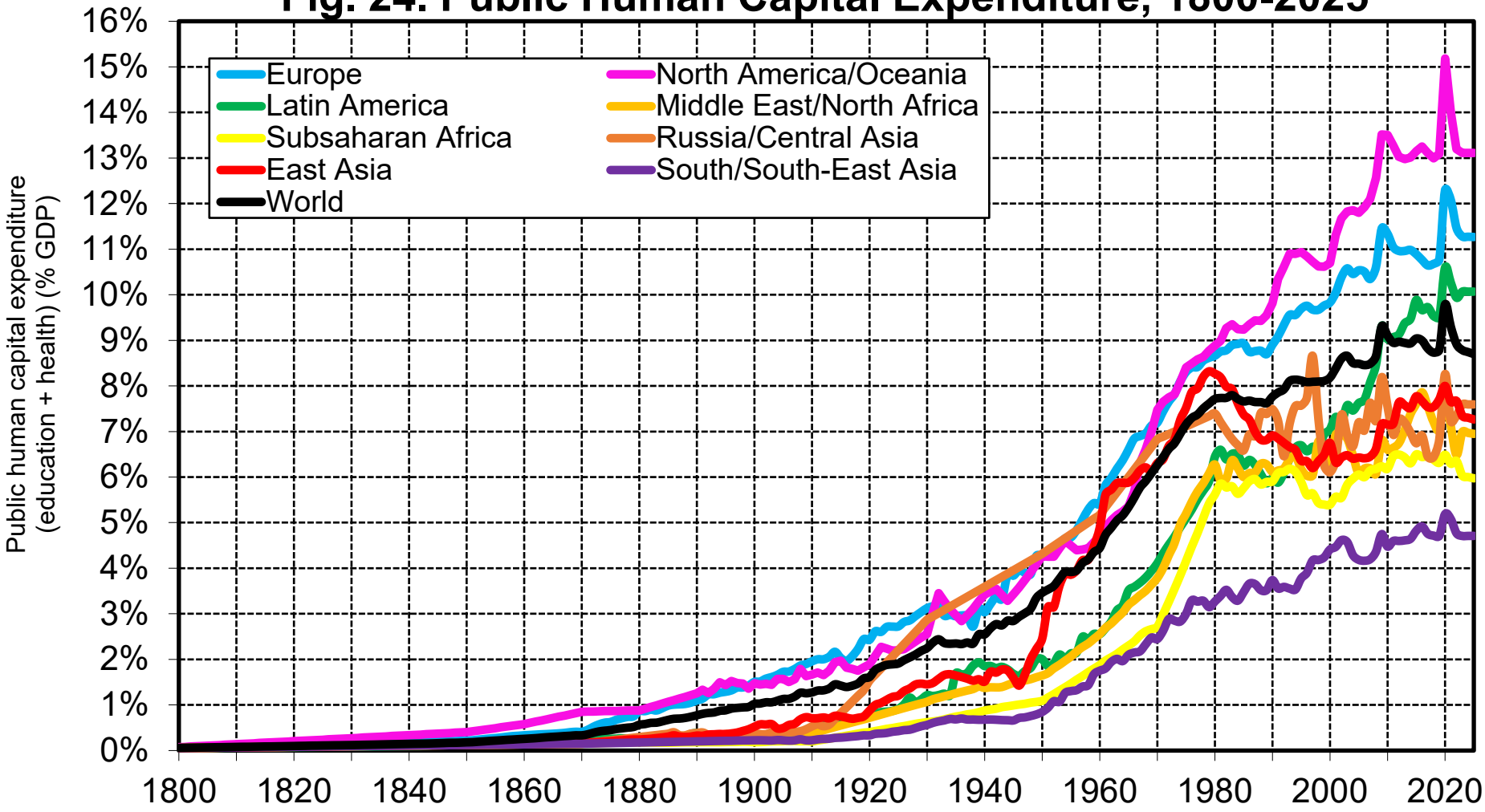
Interpretation. Western and Nordic European countries exhibit similar or higher productivity as the US since 1980. Within Europe, the highest productivity countries tend to be the most equal (especially in Nordic Europe), reflecting the increasing role of human capital & inclusiveness for prosperity. This was not the case in 1800-1900, when the productivity leader (GB) was as unequal as other countries, reflecting the role of other factors (coal, cotton, colonies, etc.). In 1900-1970, the productivity leader (US) did exhibit large educational advance over all other countries (incl. GB, FR, DE, JP, etc.) and was also less unequal. **Sources and series**: wid.world (B1b)

Fig. 23. Hourly Productivity by Country 1800-2025



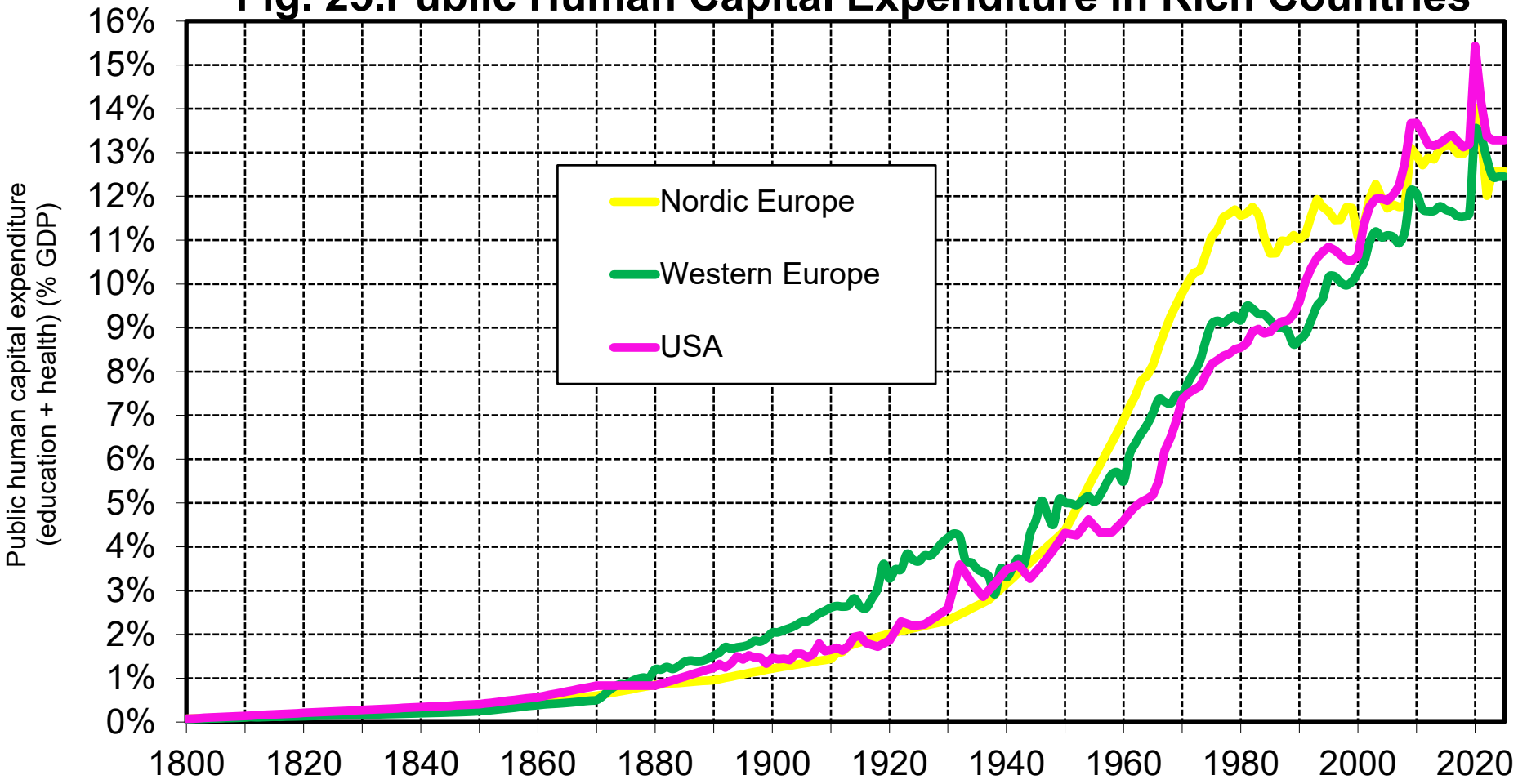
Interpretation. Western and Nordic European countries exhibit similar or higher productivity as the US since 1980. Within Europe, the highest productivity countries tend to be the most equal (especially in Nordic Europe), reflecting the increasing role of human capital & inclusiveness for prosperity. This was not the case in 1800-1900, when the productivity leader (GB) was as unequal as other countries, reflecting the role of other factors (coal, cotton, colonies, etc.). In 1900-1970, the productivity leader (US) did exhibit large educational advance over all other countries (incl. GB, FR, DE, JP, etc.) and was also less unequal. **Sources and series**: wid.world (B1c)

Fig. 24. Public Human Capital Expenditure, 1800-2025



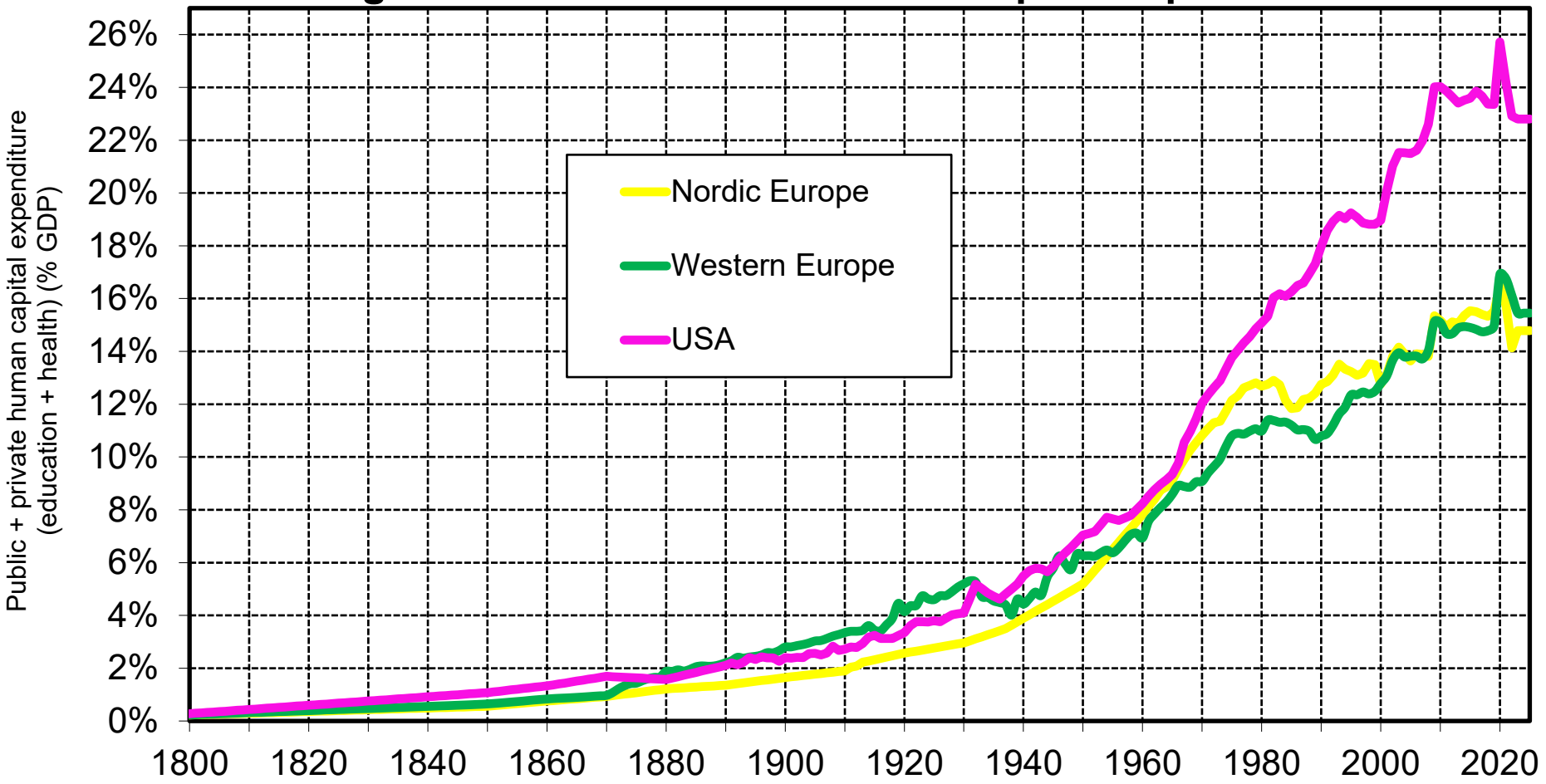
Interpretation. Public human capital expenditure (education and health) has risen enormously as a fraction of GDP in all world regions in the long run. The rise has been the strongest in North America/Oceania and Europe and the smallest in Subsaharan Africa and South & South-East Asia, which can contribute to explain the large differential in productivity growth rates. **Sources and series**: wid.world (B2a)

Fig. 25.Public Human Capital Expenditure in Rich Countries



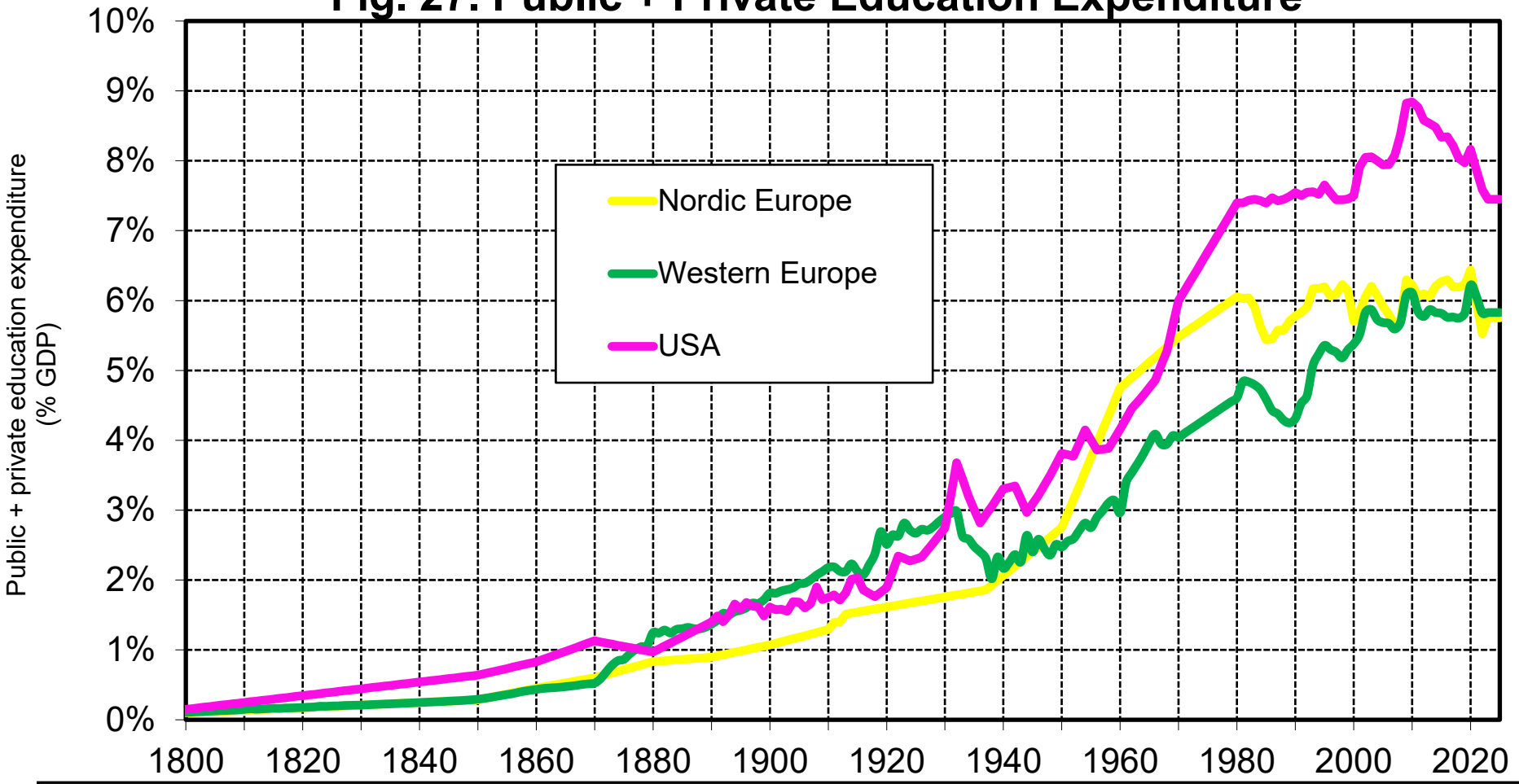
Interpretation. Public human capital expenditure (education and health) has risen enormously as a fraction of GDP in the world's richest regions in the long run. Between the 1950s and the 1990s, the rise has been stronger in Nordic Europe (Sweden-Denmark-Norway-Netherlands) than in Western Europe (Germany-France-Britain) and the USA, which can contribute to explain why productivity has reached particularly high levels in Nordic Europe. **Sources and series**: wid.world (B2b)

Fig. 26. Public + Private Human Capital Expenditure



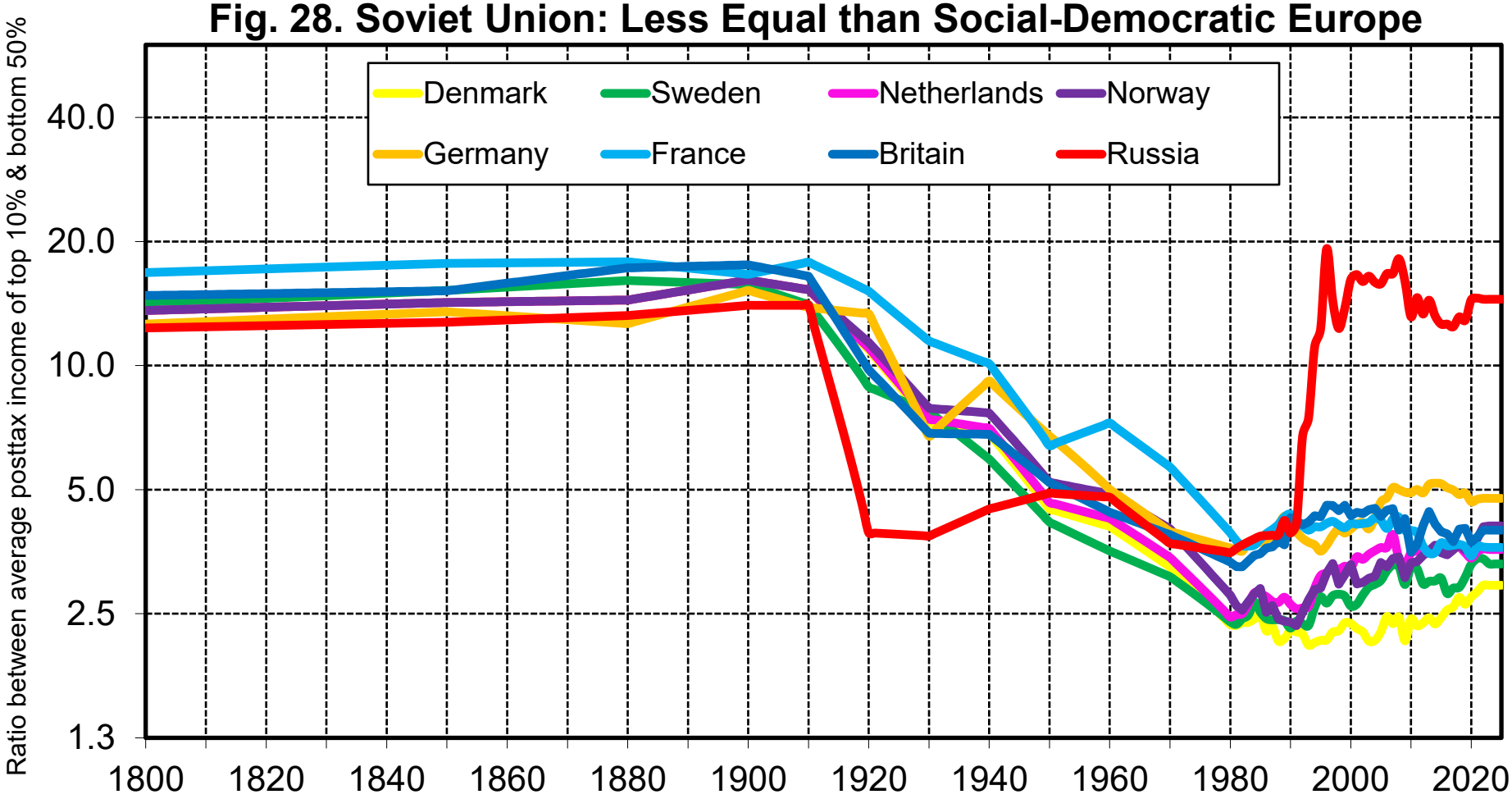
Interpretation. If we include both public and private human capital expenditure (education and health), we find that the rise in total human capital expenditure has been much larger in the USA than in Europe, due to very high private health expenditure (and to a lesser extent to private education expenditure). **Sources and series**: wid.world (B2c)

Fig. 27. Public + Private Education Expenditure



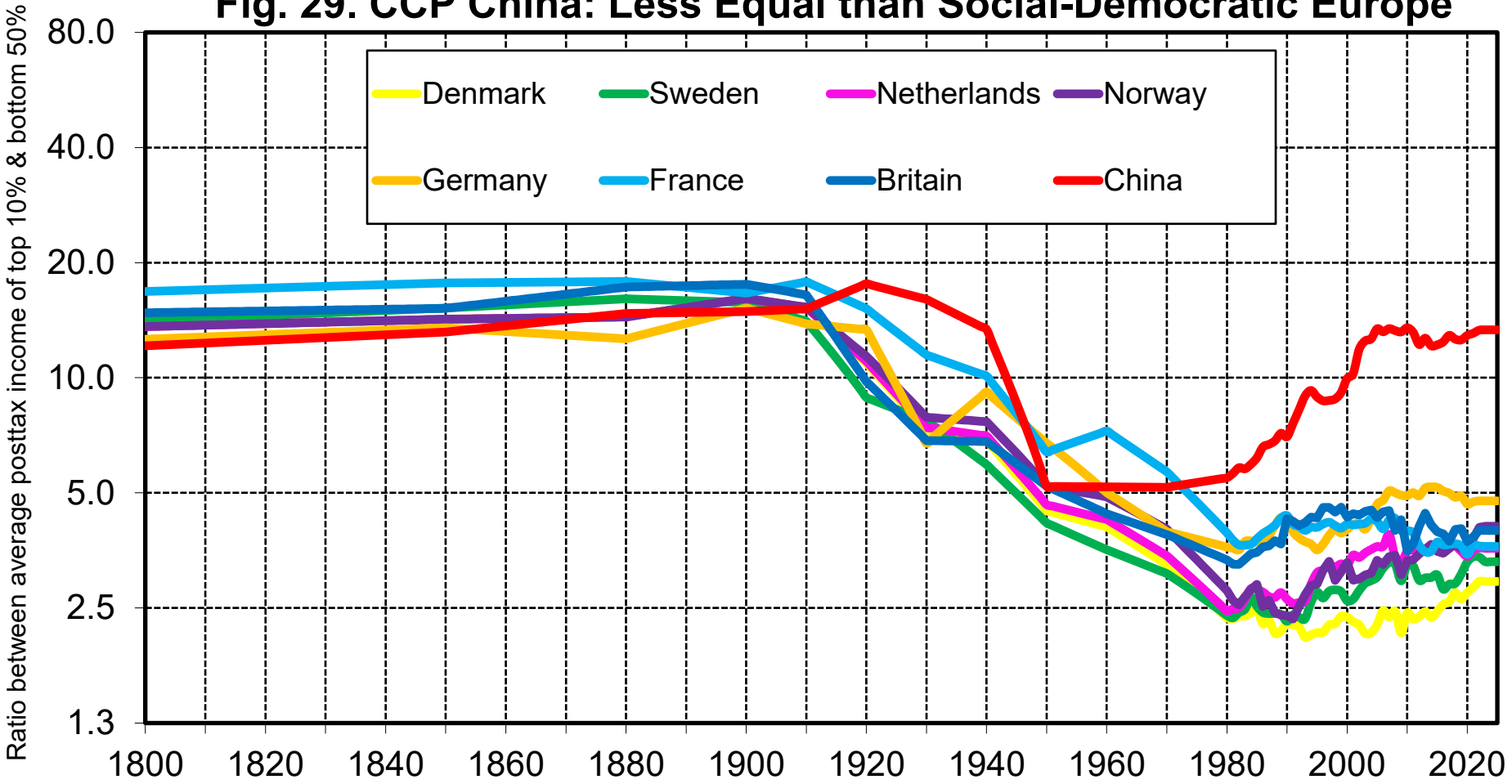
Interpretation. If we include both public and private education expenditure, we find that the rise in total education expenditure has been larger in the USA than in either Nordic Europe (Sweden-Denmark-Norway-Netherlands) or Western Europe (Germany-France-Britain).
Sources and series: wid.world (B2d)

Fig. 28. Soviet Union: Less Equal than Social-Democratic Europe



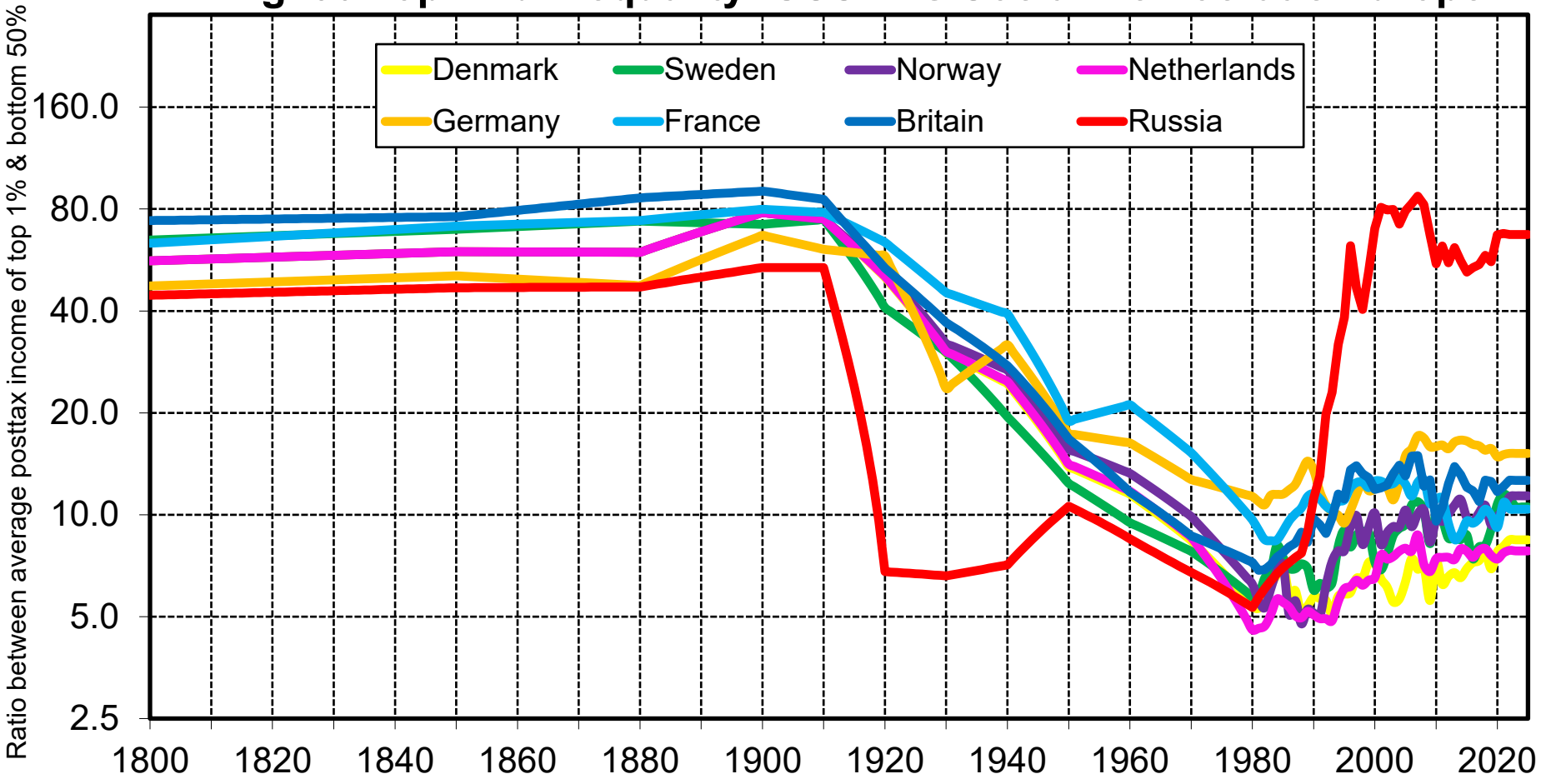
Interpretation. The income scale between the top 10% and the bottom 50% was substantially compressed in Soviet Russia (with a T10/50 income ratio around 5, vs about 15-20 in Tsarist Russia and post-communist Russia). However it remained higher than the income scale around 2,5-3 observed since the 1980s in Sweden, Denmak, Norway or the Netherlands (and around 4-5 in Germany, France and Britain).
Sources and series: wid.world (A2n)

Fig. 29. CCP China: Less Equal than Social-Democratic Europe



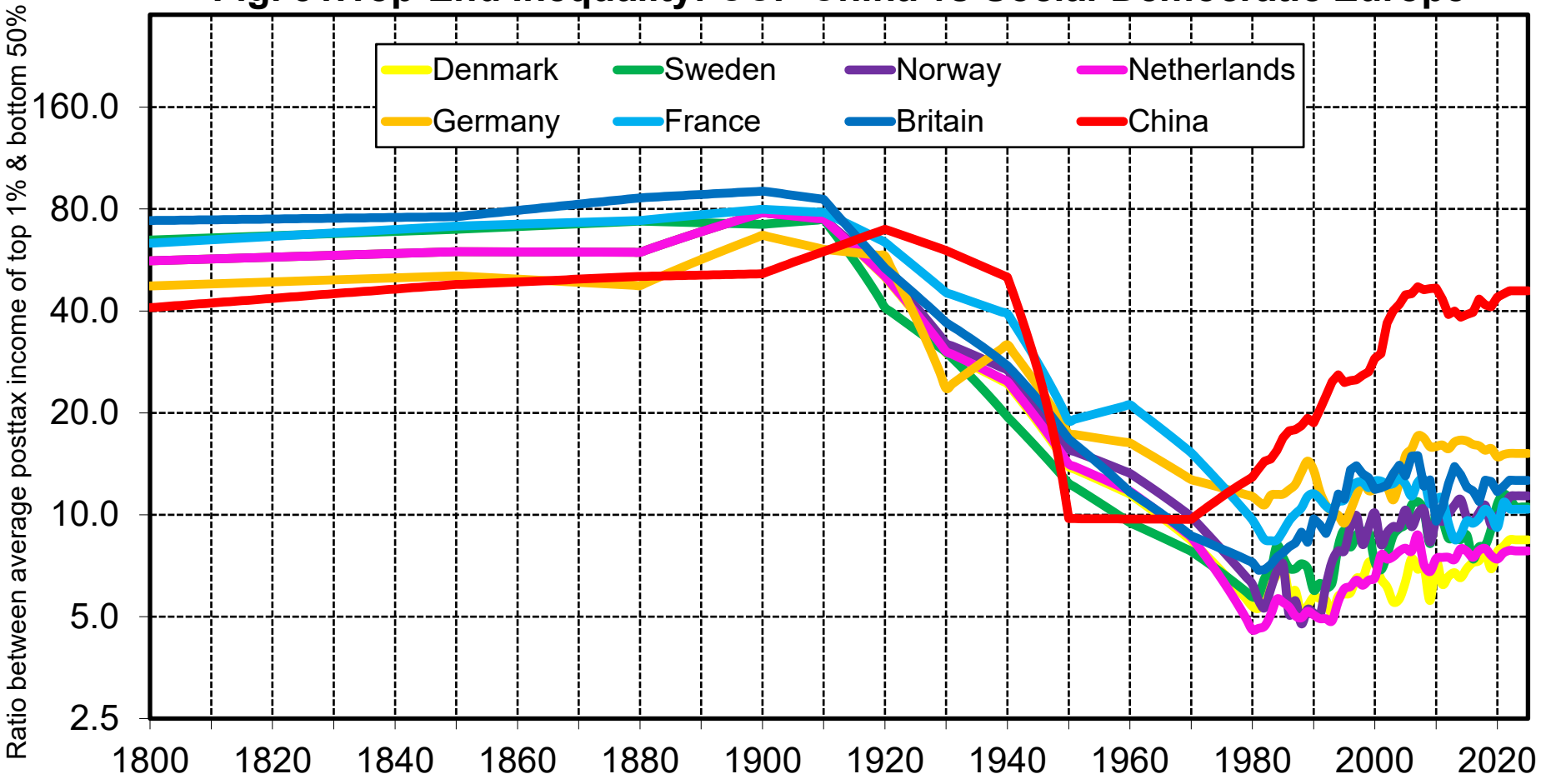
Interpretation. The income scale between the top 10% and the bottom 50% was substantially compressed in CCP China during Maoist period (with a T10/50 income ratio around 5, vs about 15-20 in pre-CCP China and 10-15 post-reform CCP China). However it remained higher than the income scale around 2,5-3 observed since the 1980s in Sweden, Denmak, Norway or the Netherlands (and around 4-5 in Germany, France and Britain). **Sources and series**: wid.world (A2o)

Fig. 30.Top-End Inequality: USSR vs Social-Democratic Europe



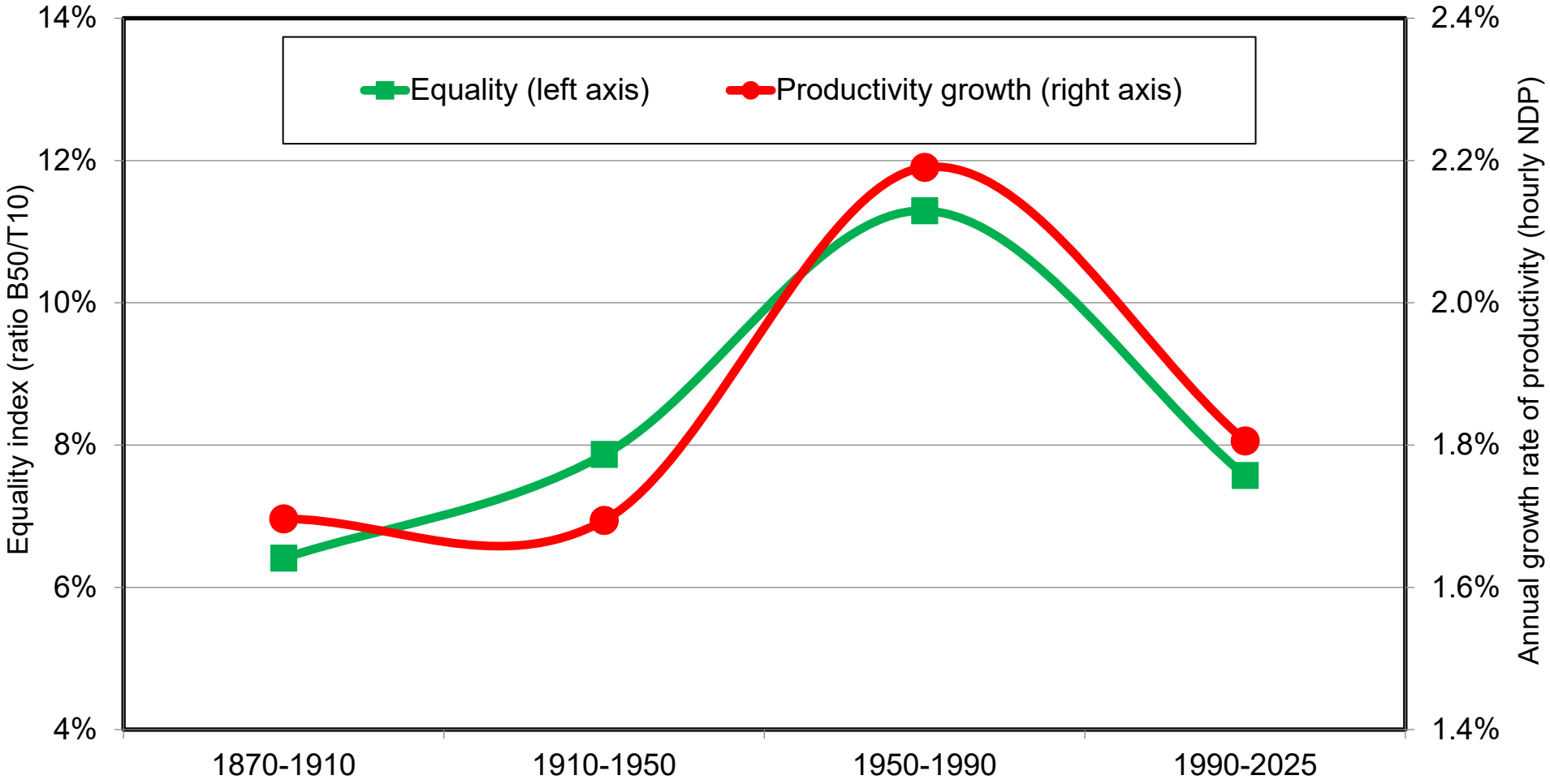
Interpretation. The income scale between the top 1% and the bottom 50% was substantially compressed in Soviet Russia (with a T1/B50 income ratio around 7-9, vs about 50-80 in Tsarist Russia and post-communist Russia). However it remained higher than the T1/B50 income scale around 5-6 observed in Nordic countries in the 1980s-1990s. **Sources and series**: wid.world (A2p)

Fig. 31.Top-End Inequality: CCP China vs Social-Democratic Europe



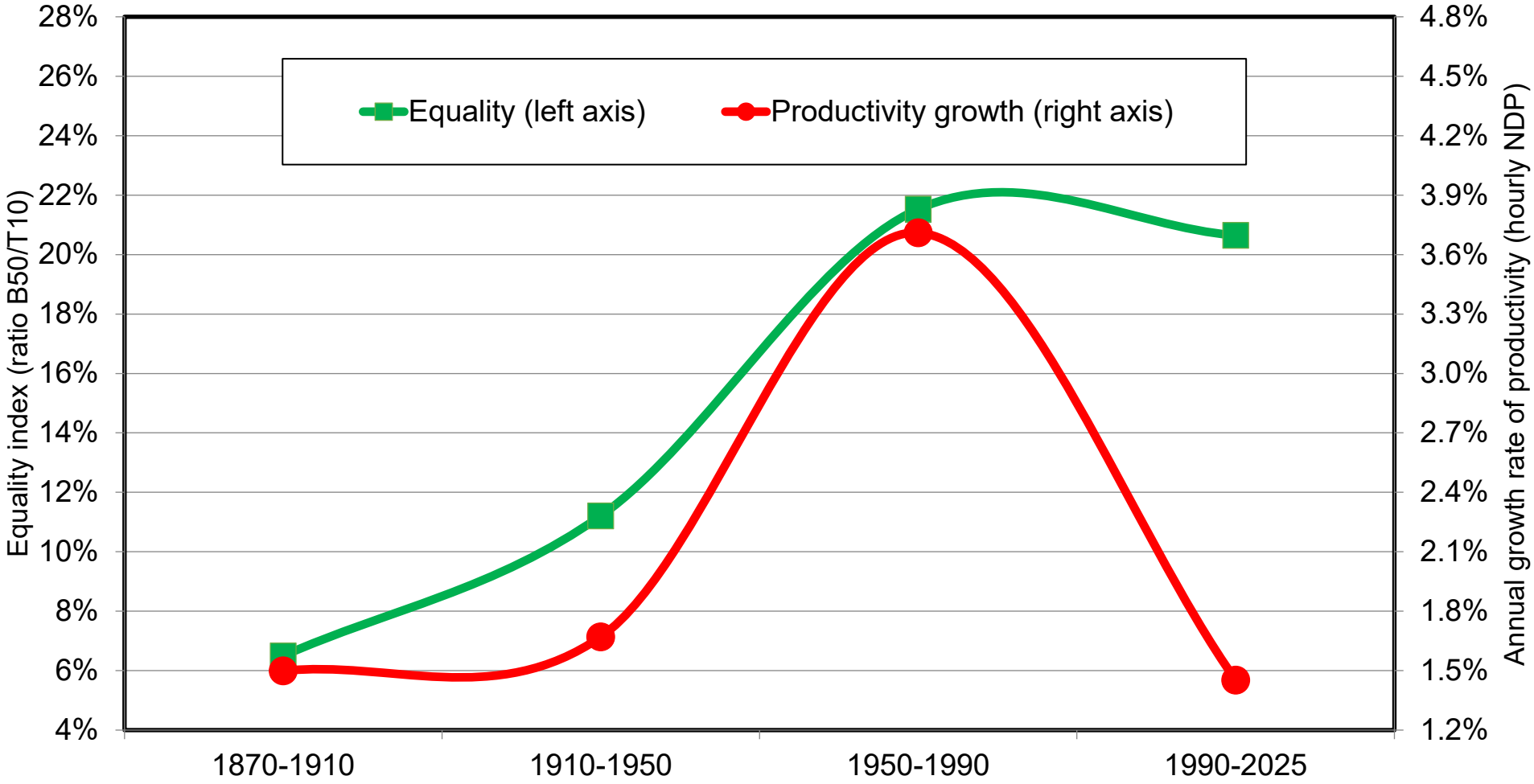
Interpretation. The income scale between the top 1% and the bottom 50% was substantially compressed in CCP China during Maoist period (with a T1/B50 income ratio around 10-12, vs about 50-80 in pre-CCP China and post-reform CCP China). However it remained higher than the T1/B50 income scale around 5-6 observed in Nordic countries in the 1980s-1990s. **Sources and series**: wid.world (A2q)

Fig. 32. Equality & Productivity Growth 1870-2025 (World)



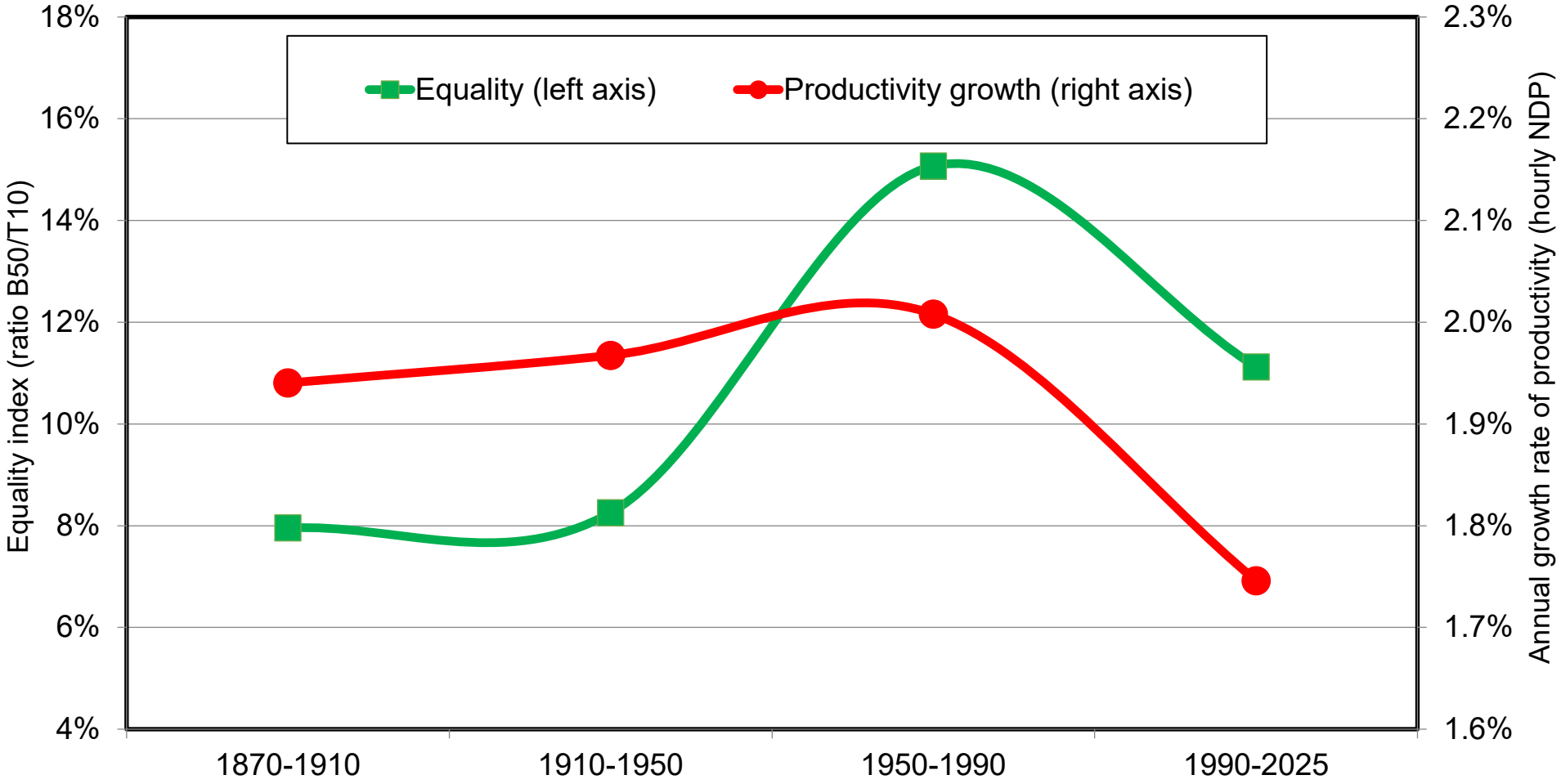
Interpretation. Generally speaking, more equality tends to be associated to more productivity growth, either in time-series or in cross section. In particular, rising inequality since 1990 was supposed to boost productivity growth but led to a decline. The time-series relation holds at the world level as well as in high-income countries and low- and middle-income countries. **Sources and series**: wid.world (C1a)

Fig. 33. Equality & Productivity Growth 1870-2025 (Europe)



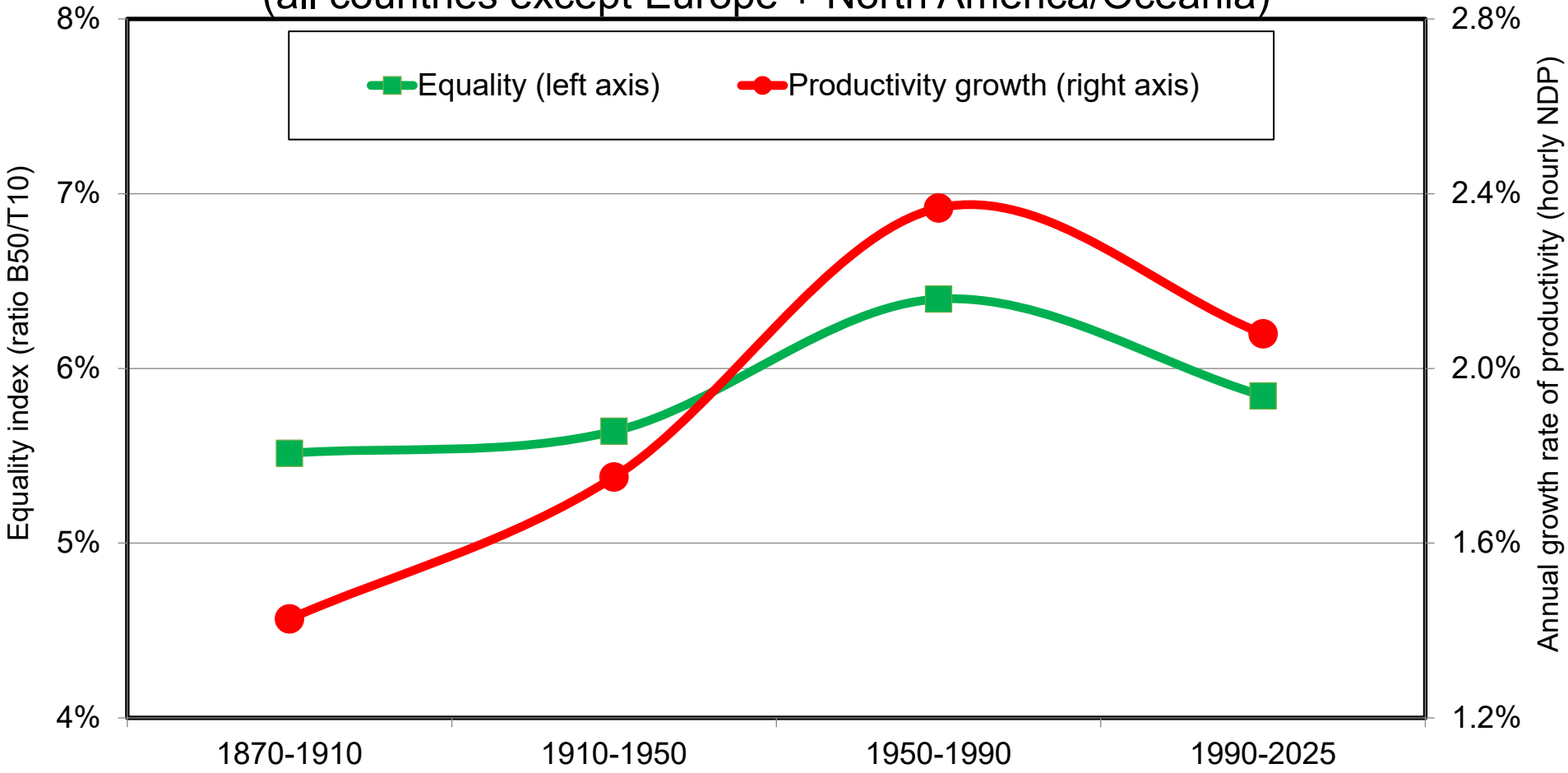
Interpretation. Generally speaking, more equality tends to be associated to more productivity growth, either in time-series or in cross section. In particular, rising inequality since 1990 was supposed to boost productivity growth but led to a decline. The time-series relation holds at the world level as well as in high-income countries and low- and middle-income countries. **Sources and series**: wid.world (C1b)

Fig. 34. Equality & Productivity Growth 1870-2025 (USA)



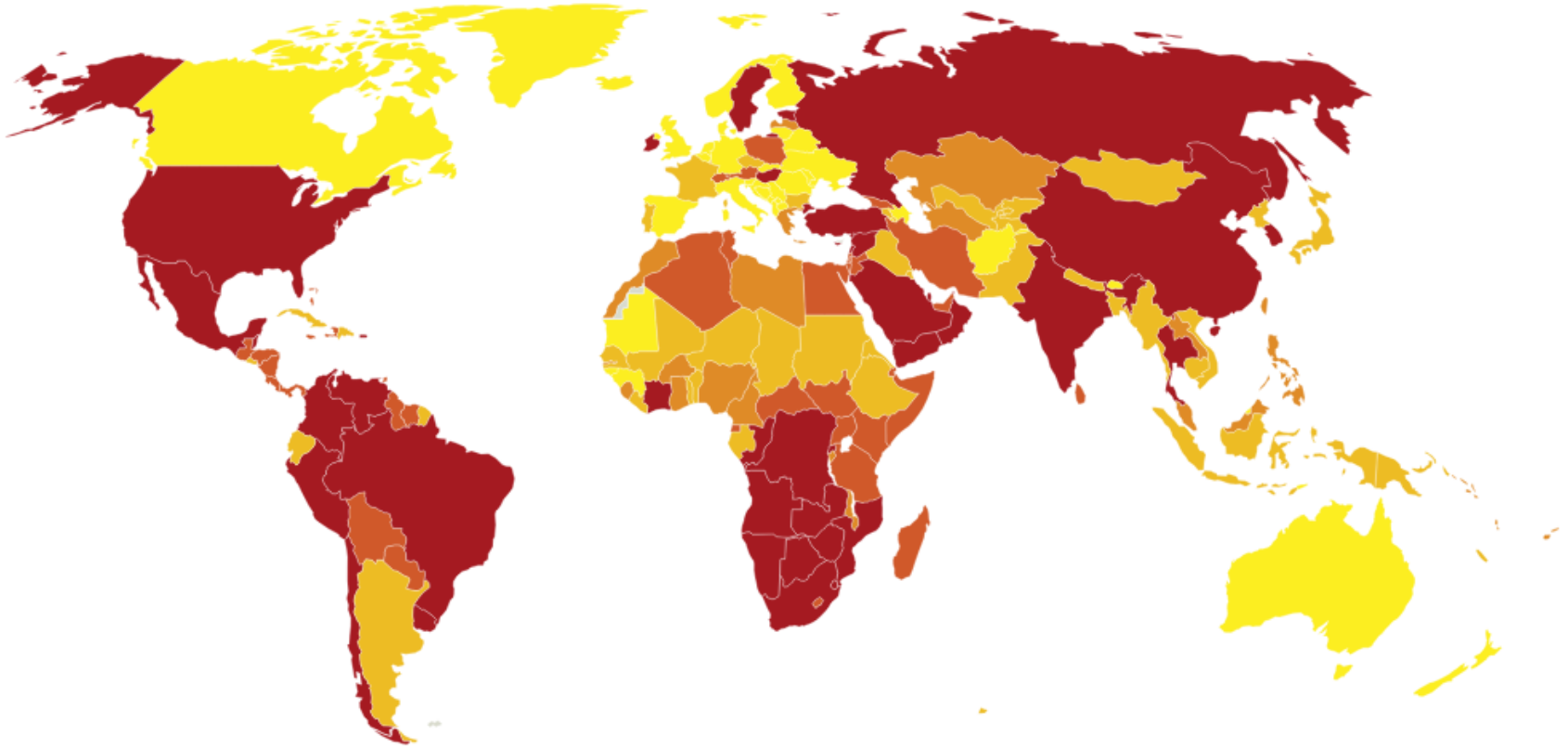
Interpretation. Generally speaking, more equality tends to be associated to more productivity growth, either in time-series or in cross section. In particular, rising inequality since 1990 was supposed to boost productivity growth but led to a decline. The time-series relation holds at the world level as well as in high-income countries and low- and middle-income countries. **Sources and series**: wid.world (C1c)

Fig. 35. Equality & Productivity Growth 1870-2025
(all countries except Europe + North America/Oceania)



Interpretation. Generally speaking, more equality tends to be associated to more productivity growth, either in time-series or in cross section. In particular, rising inequality since 1990 was supposed to boost productivity growth but led to a decline. The time-series relation holds at the world level as well as in high-income countries and low- and middle-income countries. **Sources and series**: wid.world (C1d)

Map 5. Top 10% net personal wealth share (2024)

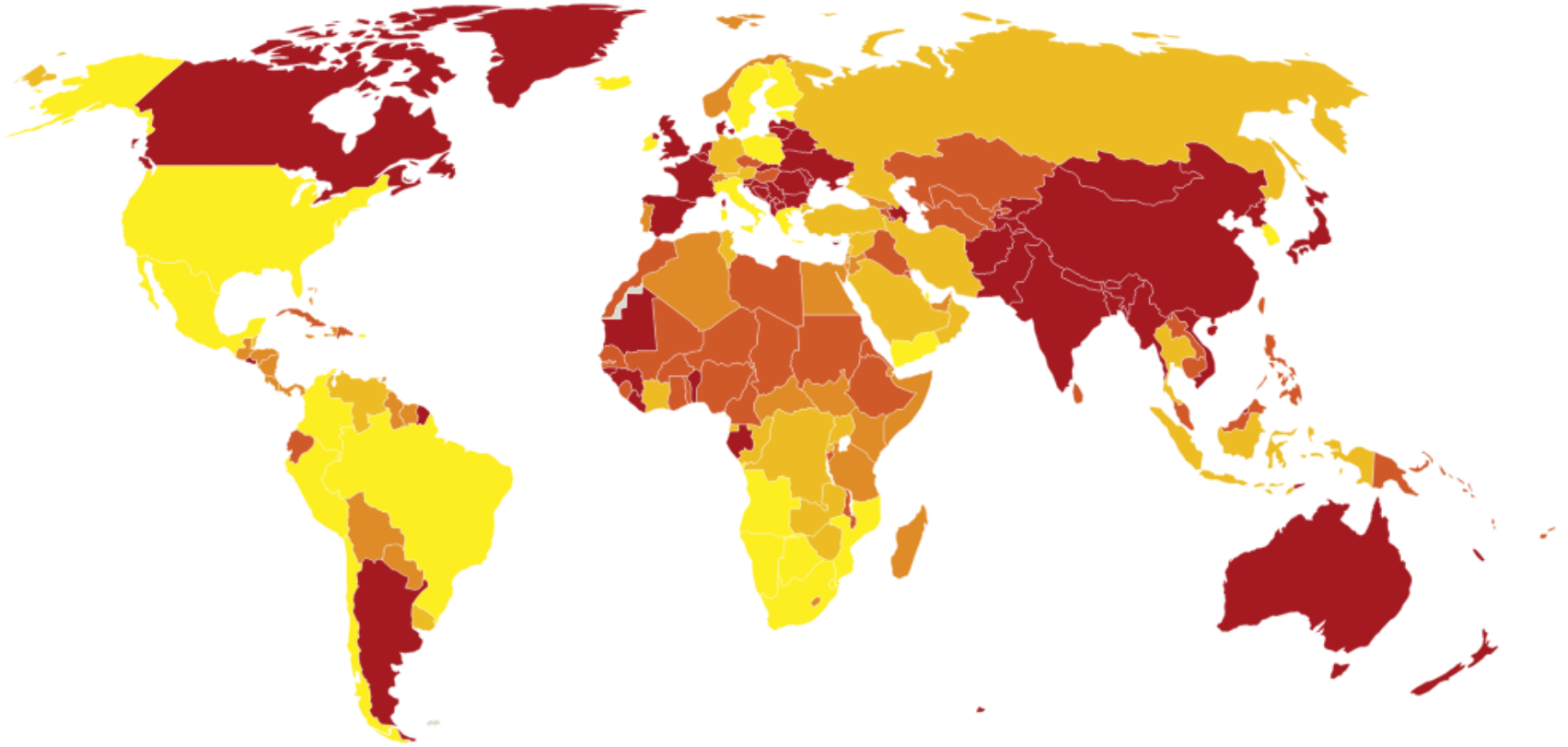


Share of total (%)

45 - 59 | 59 - 60 | 60 - 62 | 62 - 64 | 64 - 86

Graph provided by www.wid.world

Map 6. Bottom 50% net personal wealth share (2024)

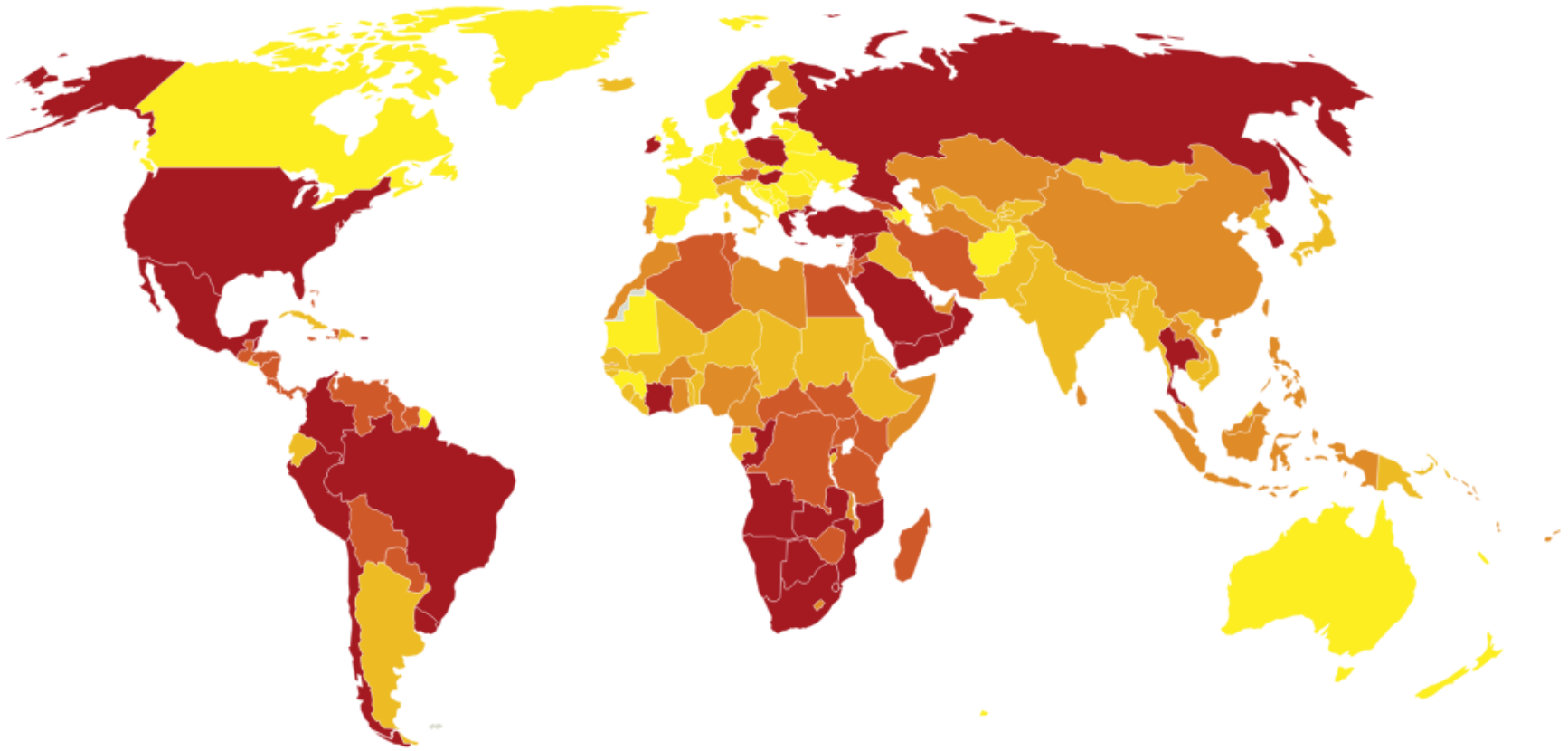


Share of total (%)

-10.9 - 2.6 | 2.6 - 3.5 | 3.5 - 3.8 | 3.8 - 4 | 4 - 10.4

Graph provided by www.wid.world

Map 7. Gini index of net personal wealth (2024)

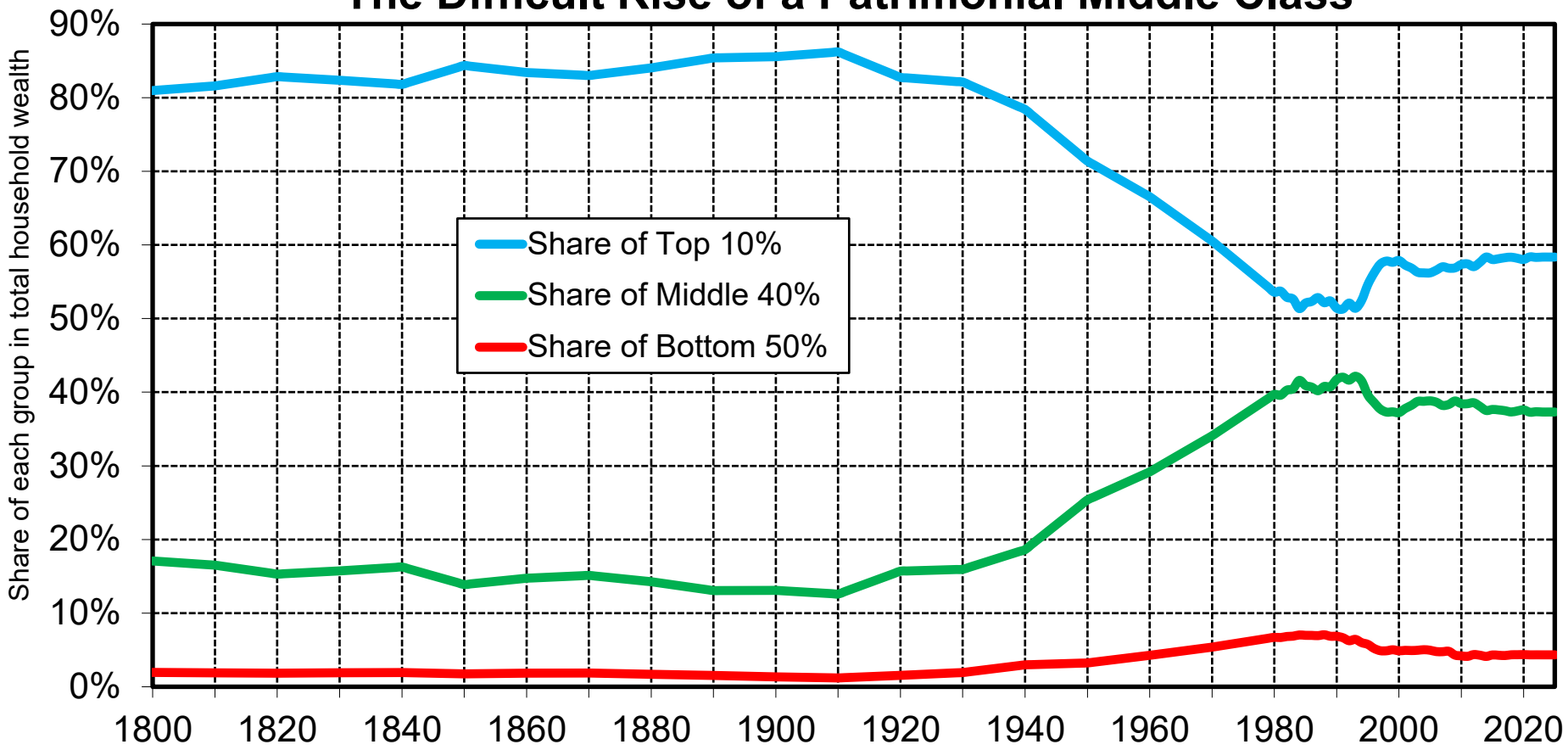


Gini coefficient

0.6 - 0.8 | 0.8 - 0.8 | 0.8 - 0.8 | 0.8 - 0.8 | 0.8 - 1

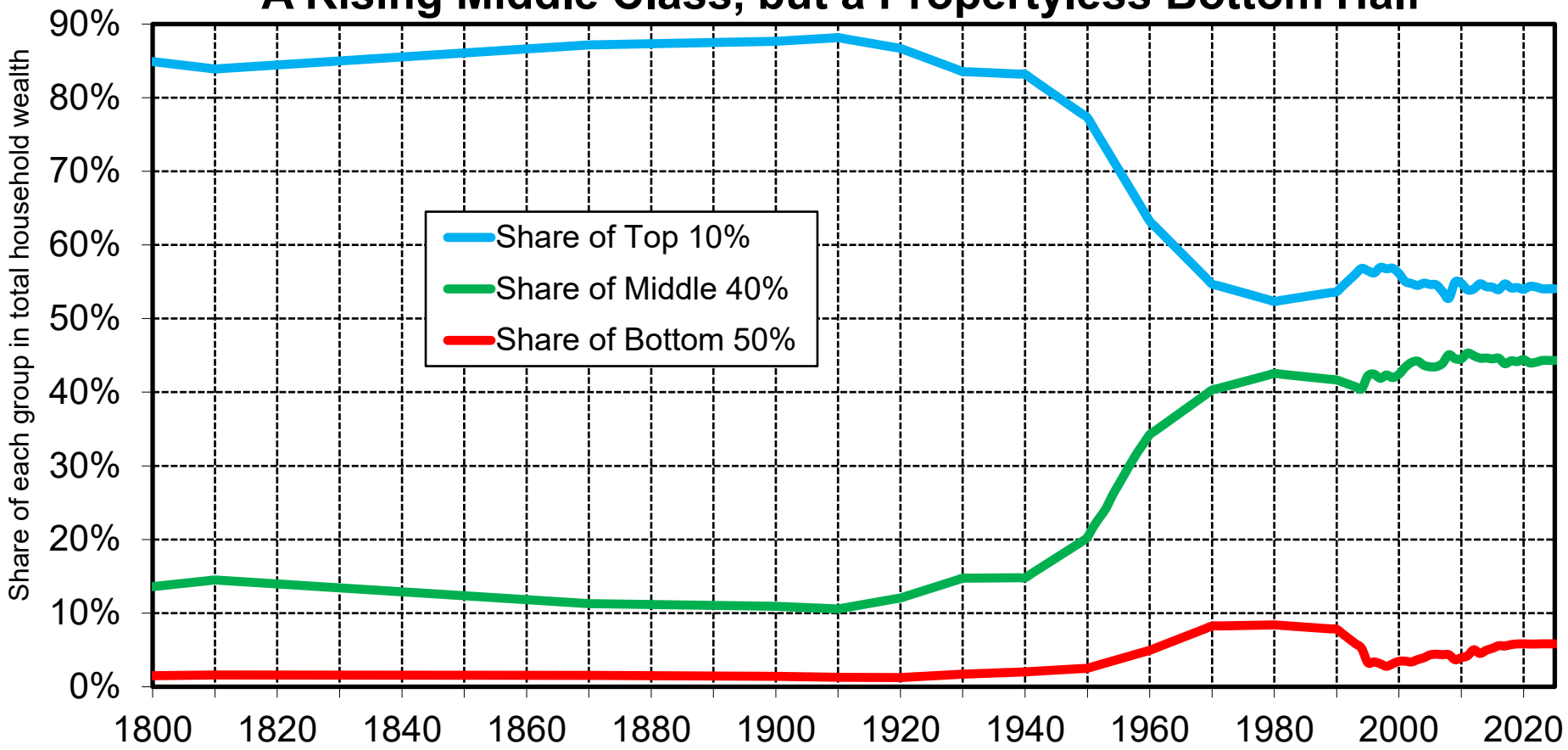
Graph provided by www.wid.world

Fig. 36. Wealth Shares in Western Europe: The Difficult Rise of a Patrimonial Middle Class



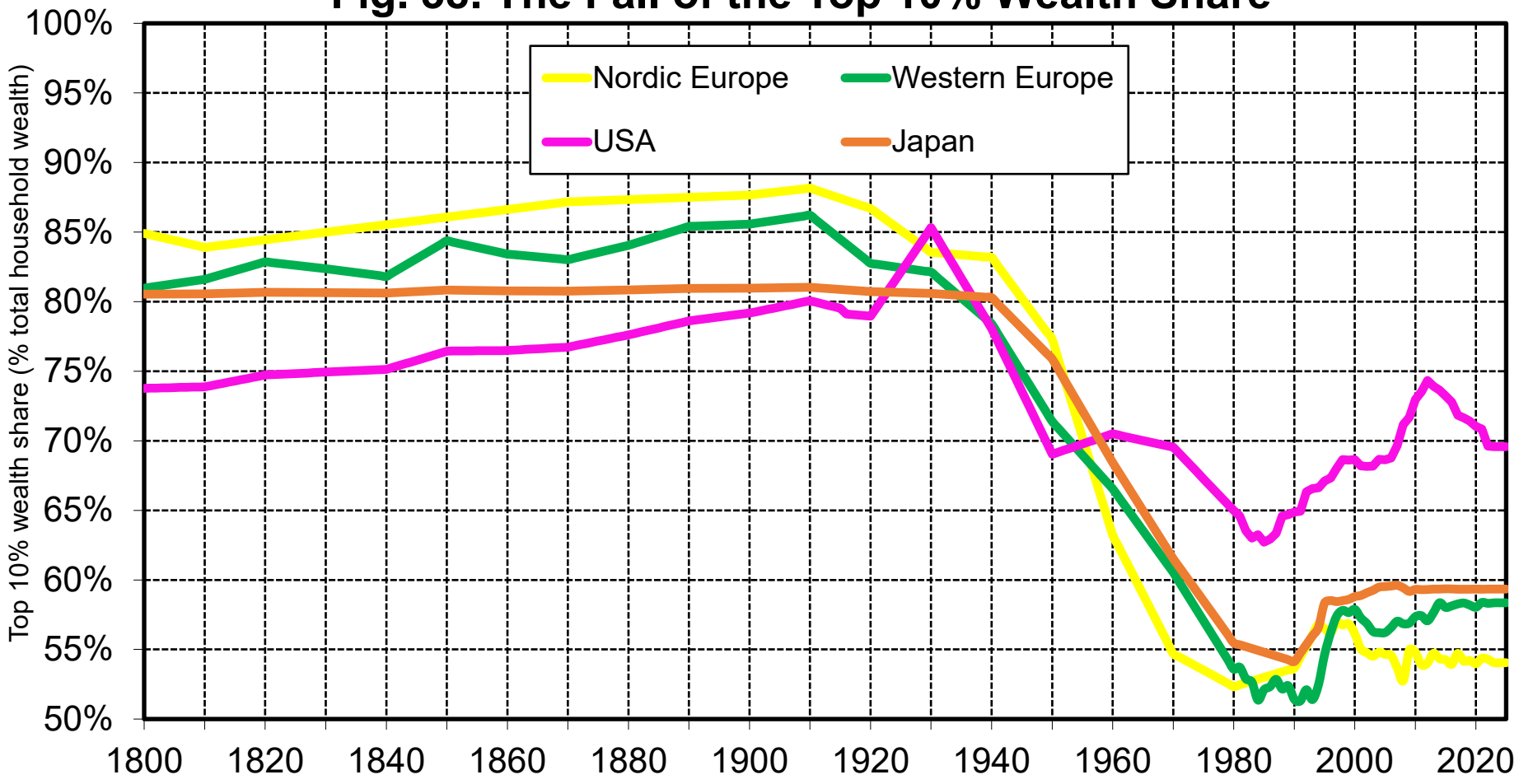
Interpretation. In Western Europe (which we define as the average Germany-France-Britain), the share of the top 10% highest wealth holders in total household wealth (including housing, business and financial asssets, net of debt) fell from over 80% in 1910 to about 50-60% since 1980-1990, with a moderate rise in recent decades. The long-run fall of the top 10% share benefited mostly to the next 40% (the "patrimonial middle class") and very little to the bottom 50%. **Sources and series**: wid.world (E1a)

Fig. 37. Wealth Shares in Nordic Europe: A Rising Middle Class, but a Propertyless Bottom Half



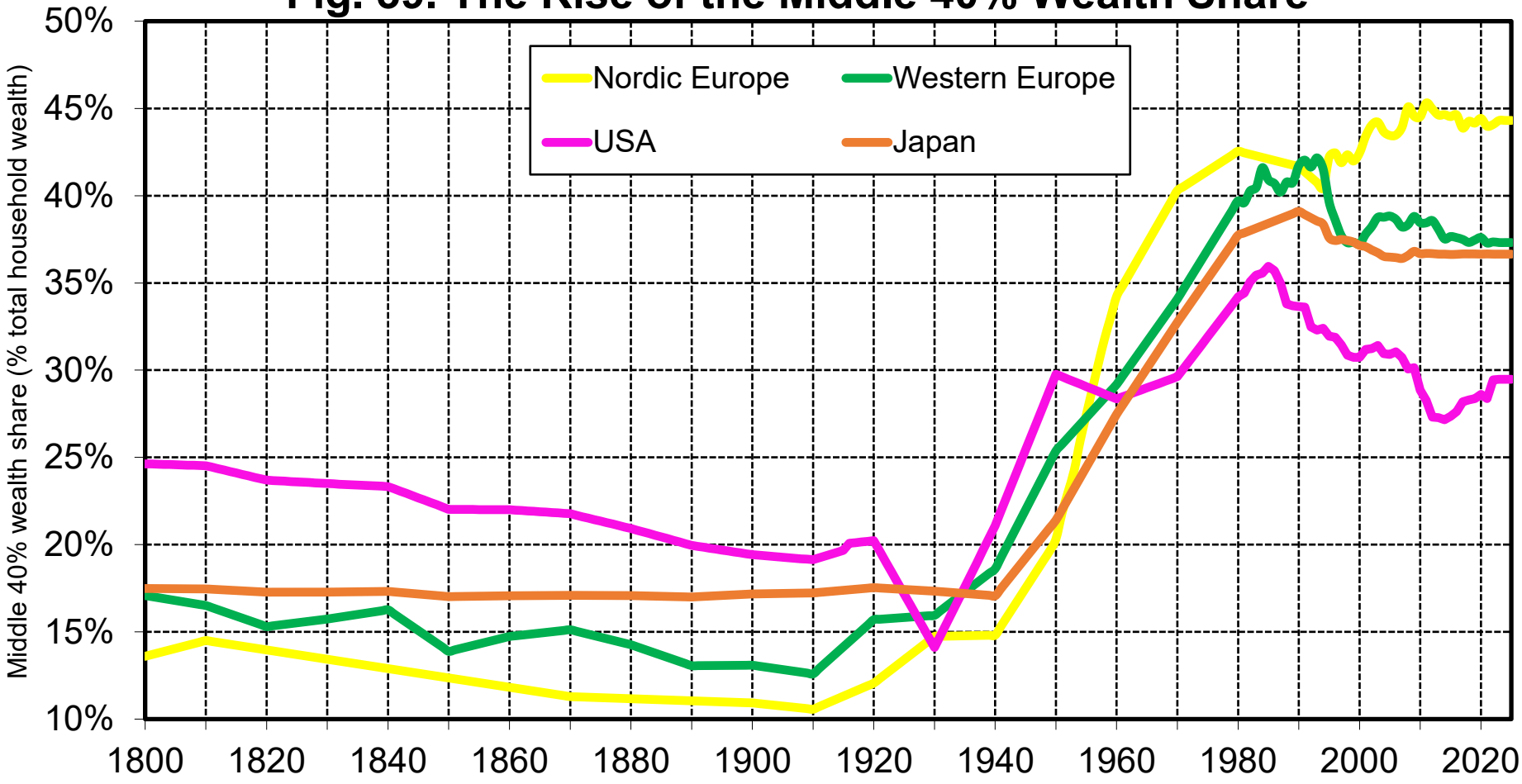
Interpretation. In Nordic Europe (which we define as the average Sweden-Denmark-Norway-Netherlands), the share of the top 10% highest wealth holders in total household wealth (including housing, business and financial asssets, net of debt) fell from over 80% in 1910 to about 50-55% since 1980-1990, with a moderate rise in recent decades. The long-run fall of the top 10% share benefited mostly to the next 40% (the "patrimonial middle class") and very little to the bottom 50%. **Sources and series**: wid.world (E1b)

Fig. 38. The Fall of the Top 10% Wealth Share



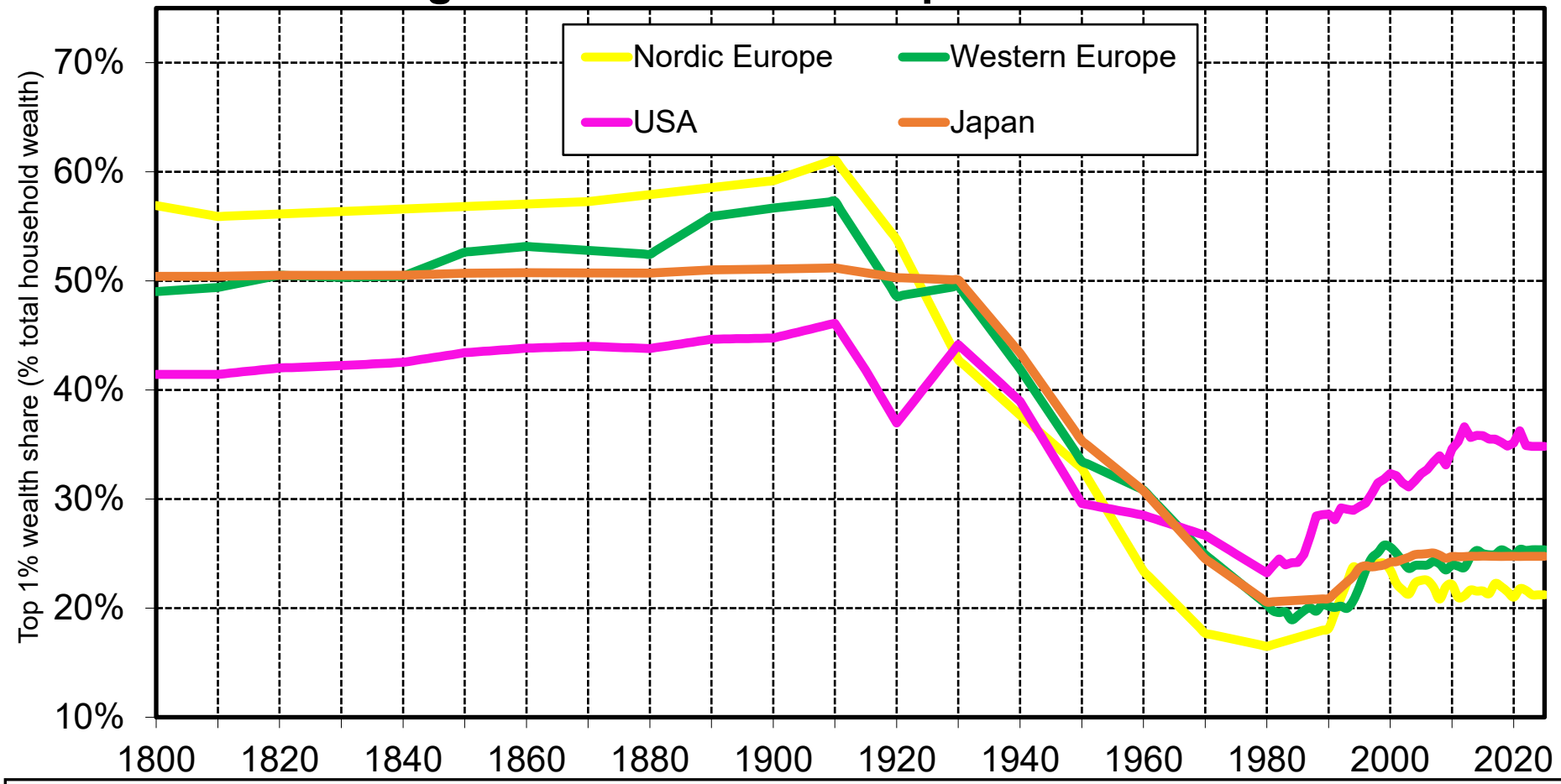
Interpretation. We observe in all rich countries a significant fall of the top 10% wealth share between 1910 and 1980. In the USA, the fall was less massive than in Western Europe or Nordic Europe, and was partly undone by rising wealth concentration since 1980-1990.
Sources and series: wid.world (E1c)

Fig. 39. The Rise of the Middle 40% Wealth Share



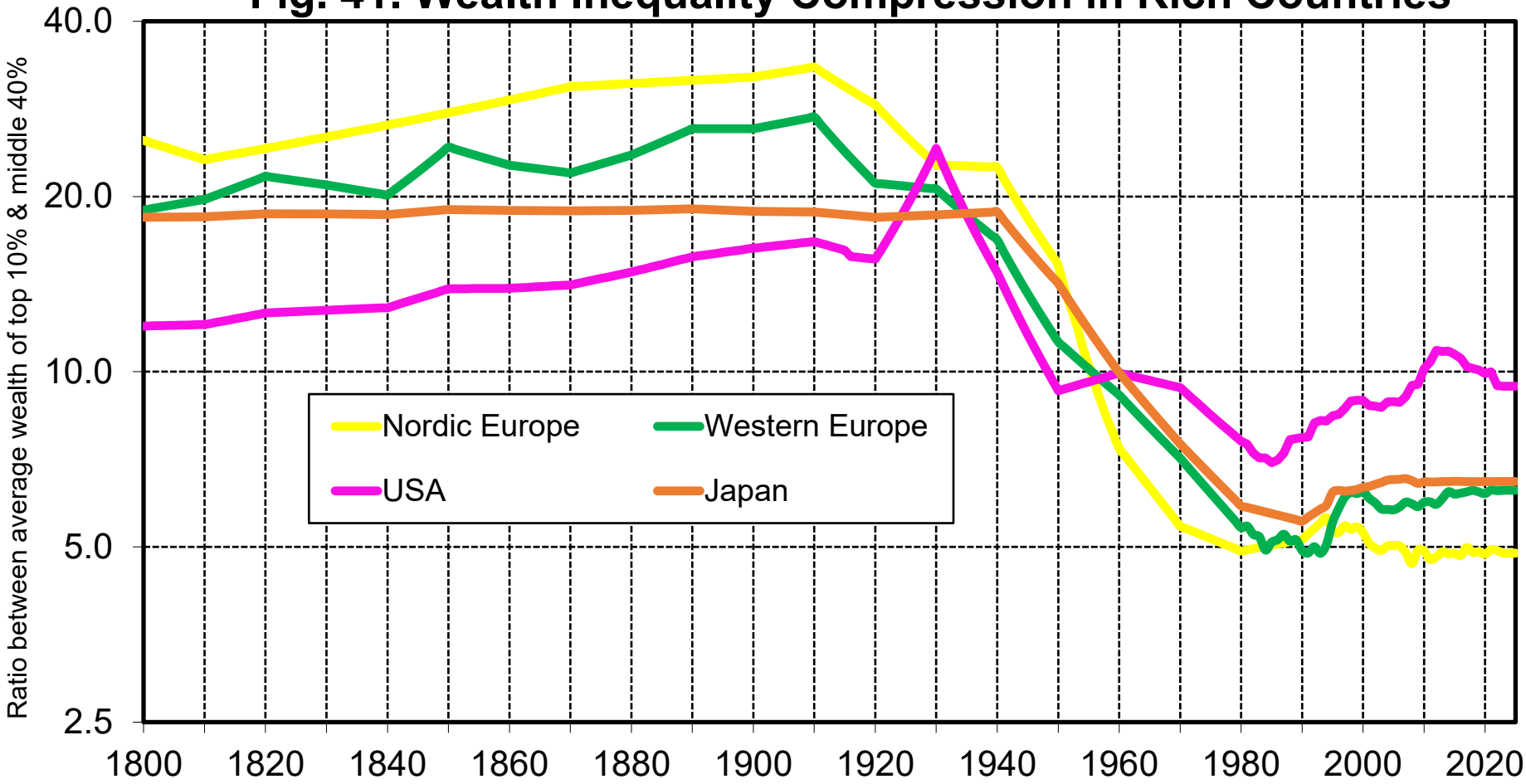
Interpretation. Between 1910 and 1980, we observe in all rich countries a significant rise of the wealth share of the "patrimonial middle class" (the middle 40%, in between the top 10% and the bottom 50%). In the USA, the rise was less massive than in Western Europe or Nordic Europe, and was partly undone by rising wealth concentration since 1980-1990. **Sources and series**: wid.world (E1d)

Fig. 40. The Fall of the Top 1% Wealth Share



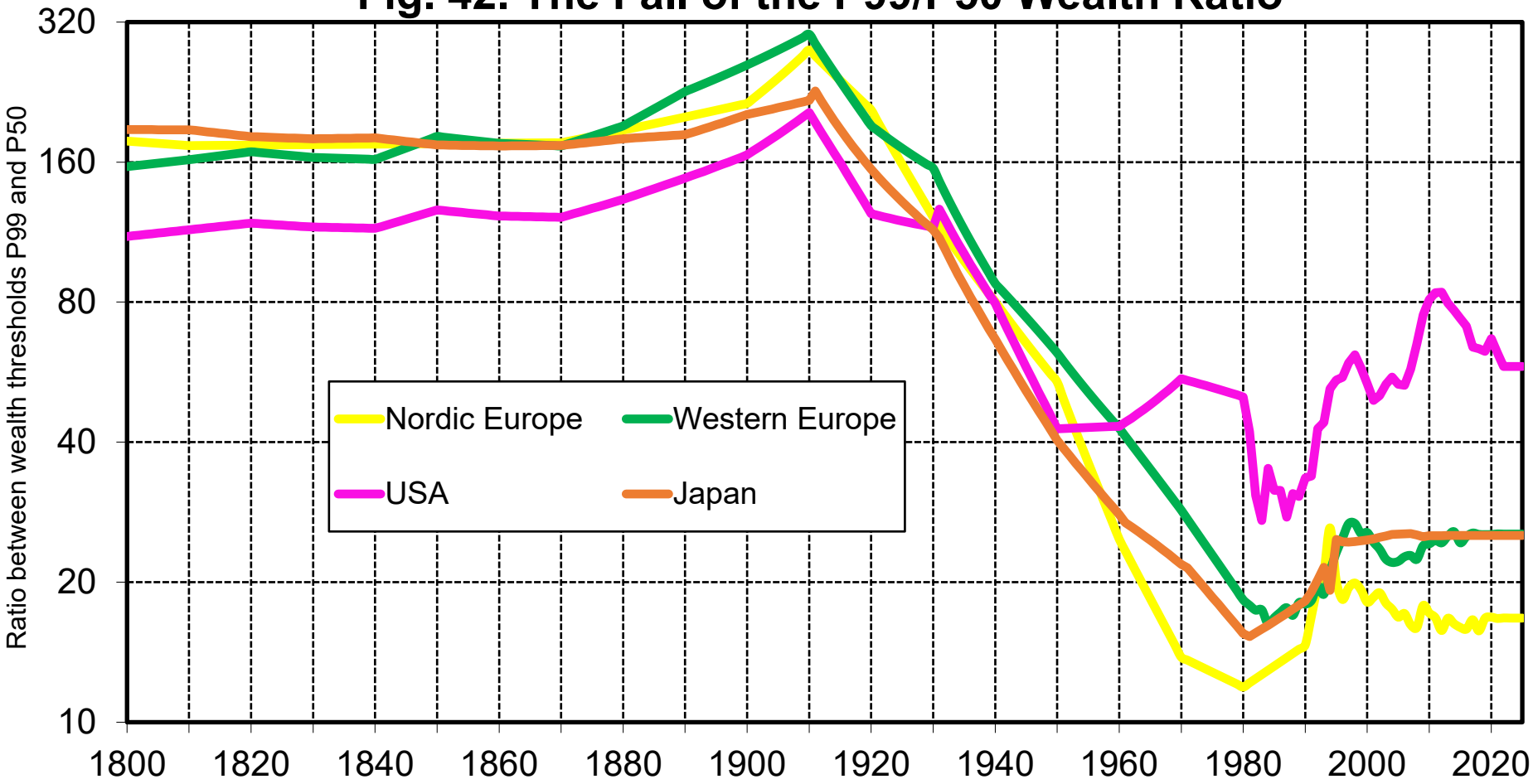
Interpretation. We observe in all rich countries a very large fall of the top 1% wealth share between 1910 and 1980. In the USA, the fall was less massive than in Western Europe or Nordic Europe, and was partly undone by rising wealth concentration since 1980-1990.
Sources and series: wid.world (E1e)

Fig. 41. Wealth Inequality Compression in Rich Countries



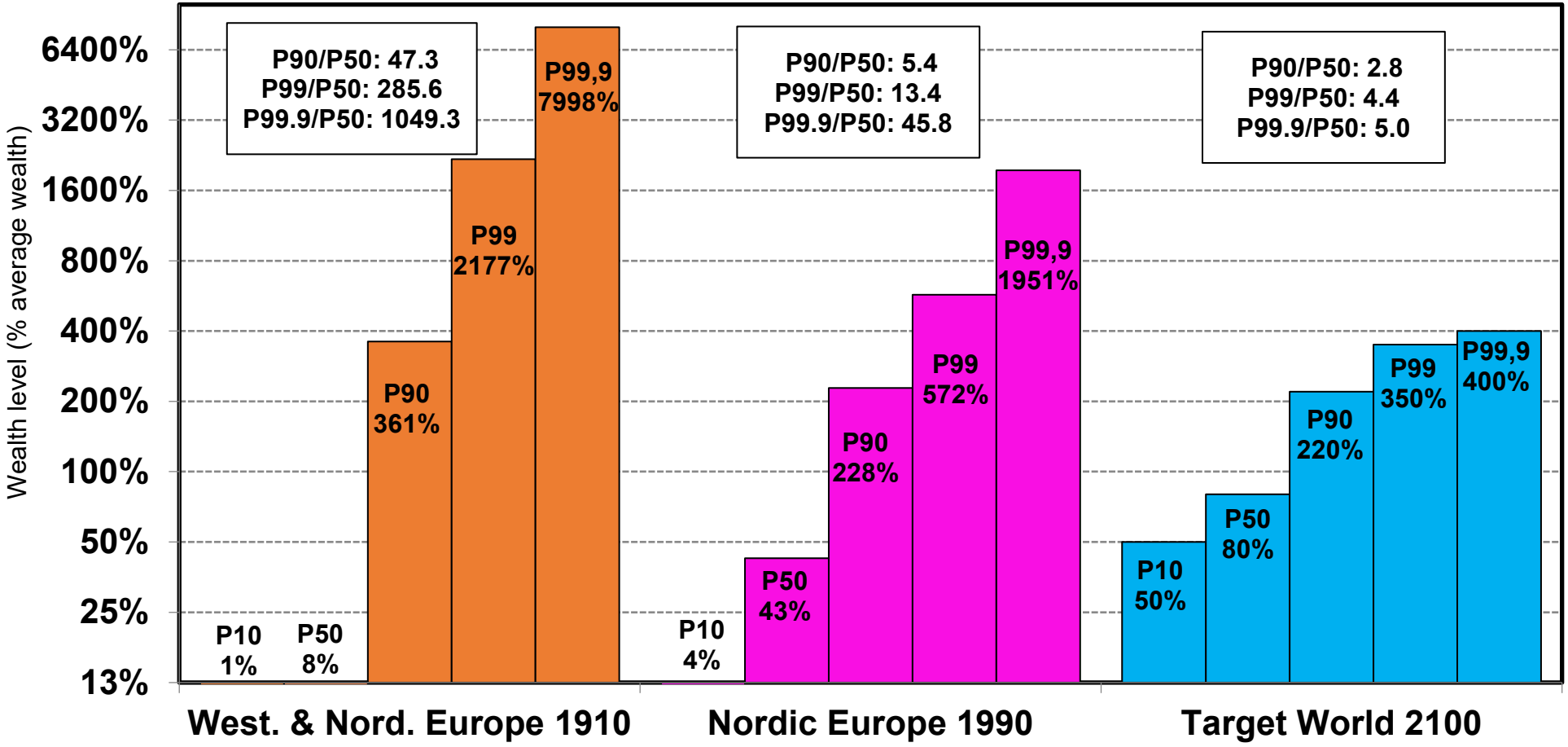
Interpretation. The ratio T10/M40 between the average wealth of the top 10% and the middle 40% has declined in all rich countries in the long run, from about 20-30 in 1900-1910 to about 5-7 in Nordic and Western Europe since 1980-1990. In the USA, the compression of the wealth scale was less massive than in Europe, and was partly undone by rising wealth concentration since 1980-1990. **Sources and series**: wid.world (E2a)

Fig. 42. The Fall of the P99/P50 Wealth Ratio



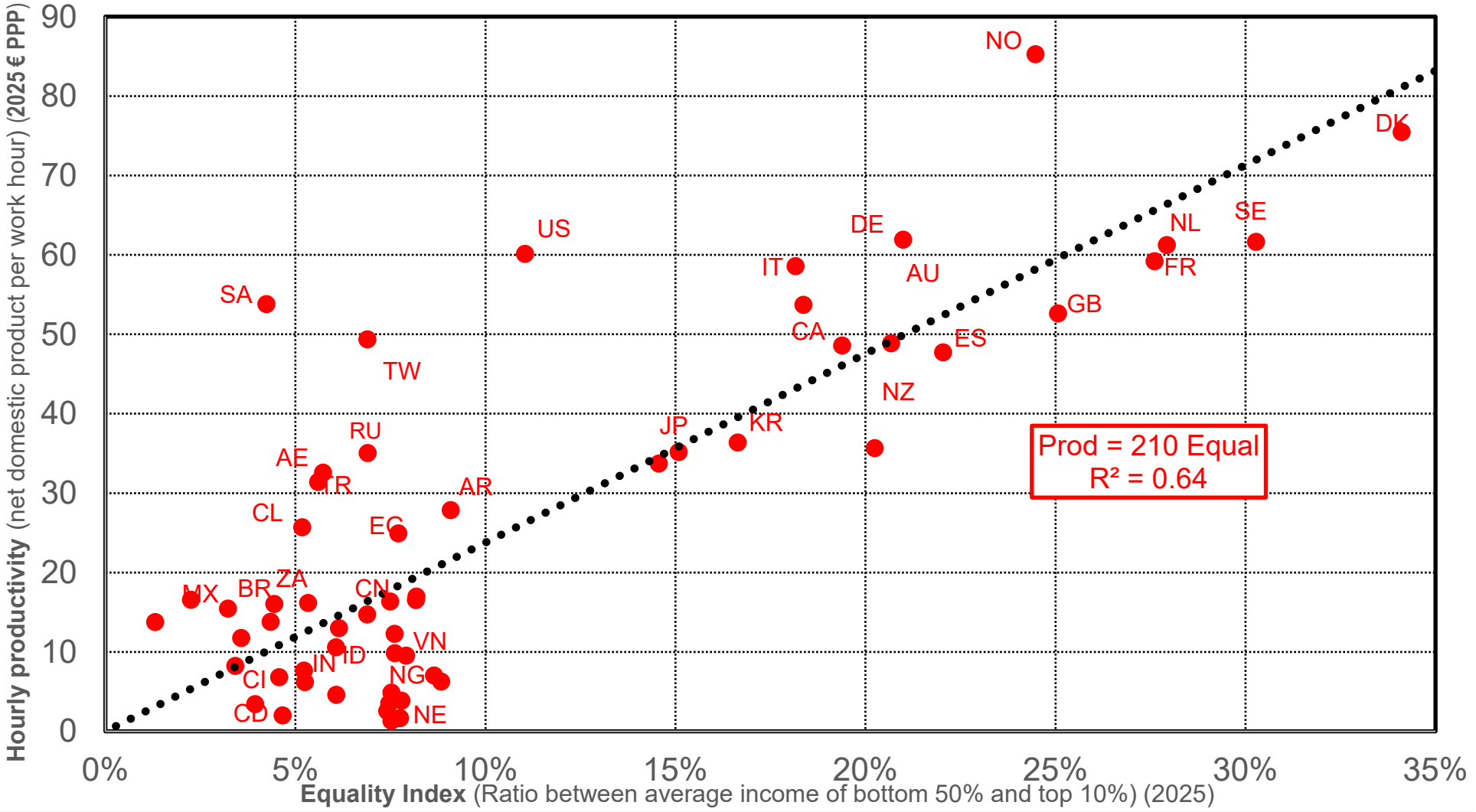
Interpretation. The ratio P99/P50 between the 99th and the 50th wealth percentiles has declined in all rich countries in the long run, from about 200-300 in 1900-1910 to about 10-20 in Nordic and Western Europe since 1980-1990. In the USA, the compression of the wealth scale was less massive than in Europe, and was partly undone by rising wealth concentration since 1980-1990. **Sources and series**: wid.world (E4a)

Fig. 43. The Proper Level of the Wealth Scale: Past and Future



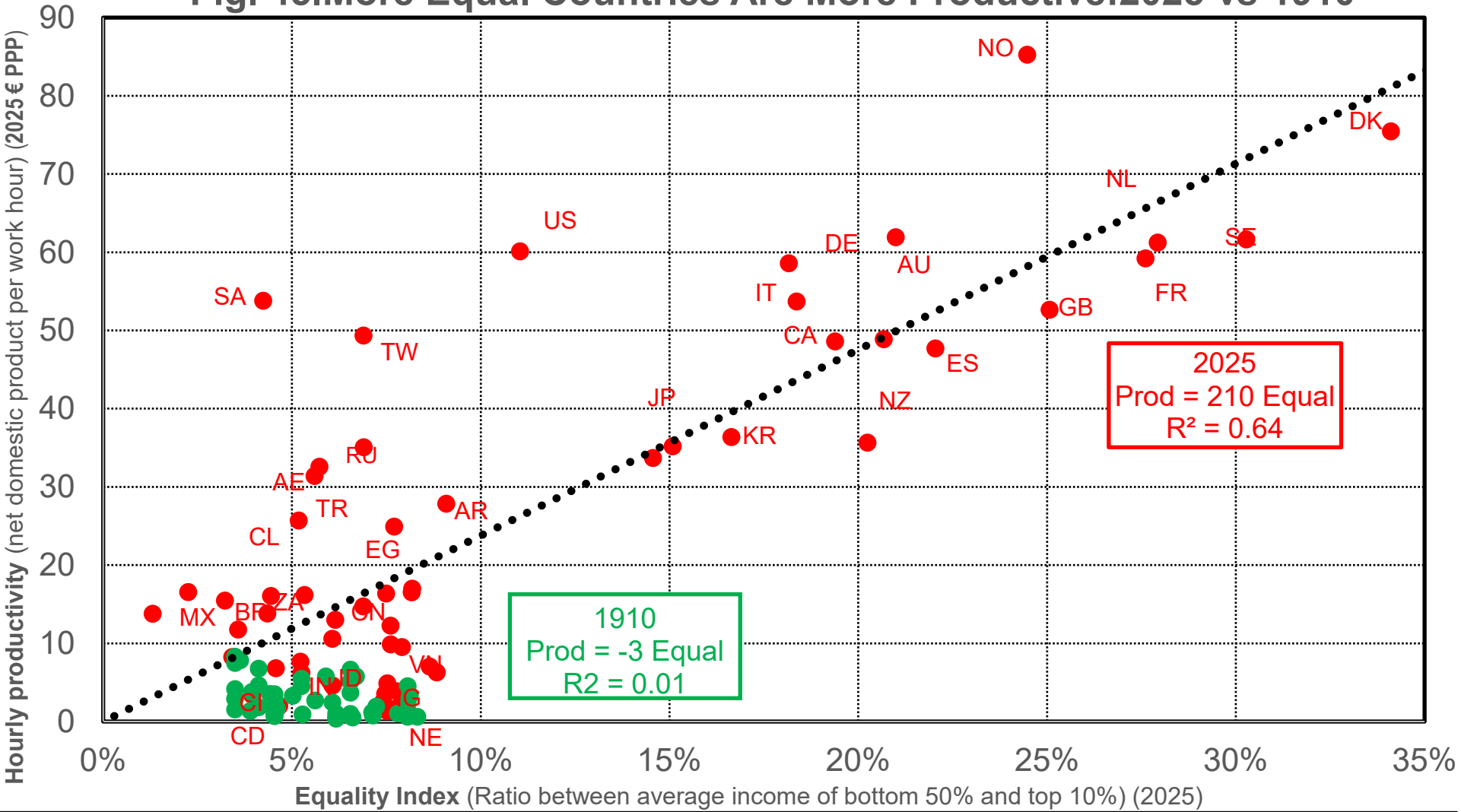
Interpretation. Over the course of the 20th century, the ratio P90/P50 between the 90th and the 50th percentiles of the wealth distribution has been divided by almost 10, while the P99/P50 and P99.9/P50 ratios have been divided by more than 20. In the target level inequality for the world 2100, the P99/P50 is further divided by about 2, the P99/P50 by 3 and the P99.9/P50 by 10. In addition, the bottom of the distribution rises to significant levels, possibly via universal minimal inheritance. **Sources and series**: wid.world (E5a)

Fig. 44. More Equal Countries Are More Productive (2025)



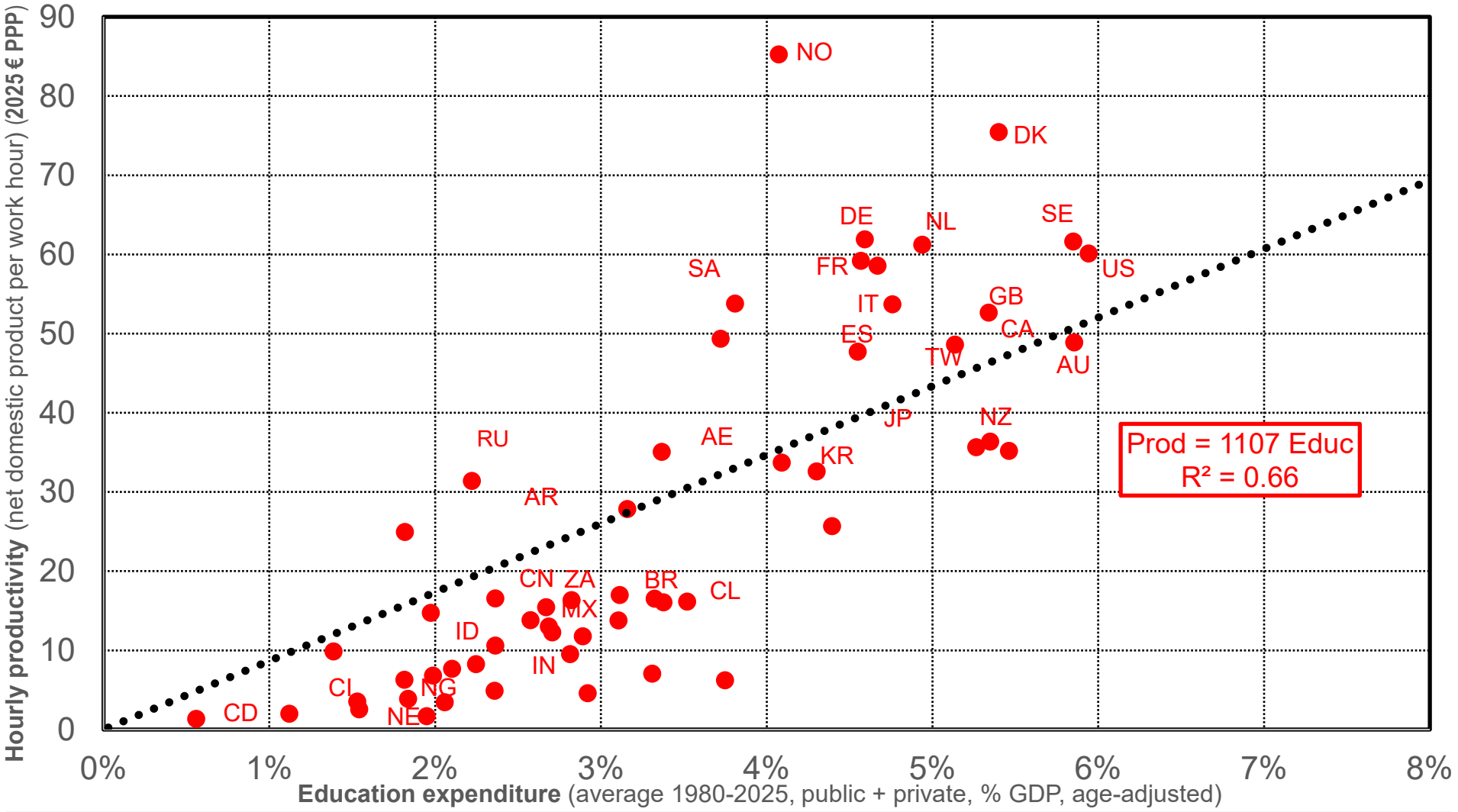
Interpretation. On average, more equal countries are also more productive. Using a simple cross-country linear regression in 2025 (48 main countries), we find that if the equality index B50/T10 rises by 10 percentage points (say from 10% to 20%, i.e. from an income scale of 1-to-10 to 1-to-5), then hourly productivity increases by 21€. **Note.** Oil-rich countries (SA, US, NO) have unusually high productivities. **Sources and series**: wid.world (C2a)

Fig. 45.More Equal Countries Are More Productive:2025 vs 1910



Interpretation. In 2025, we see a highly significant positive relation between equality and productivity, reflecting the rising role of human capital and inclusiveness for prosperity. In 1910, there is no such relation (either positive or negative). Even the highest productivity countries (GB, US) were relatively poor by modern standards (less than 7-8€ in hourly productivity in 2025 PPP) and they were as unequal as other countries, reflecting the role of other factors (coal, cotton, colonies, etc.). **Sources and series**: wid.world (C2b)

Fig. 46. Countries with More Education Expenditure Are More Productive



Interpretation. On average, countries with larger education expenditures are also more productive. Using a simple cross-country linear regression in 2025 (48 main countries), we find that if the education expenditure rises by 1 percentage points (say from 4% to 5%, of GDP), then hourly productivity increases by 11€. **Sources and series**: wid.world (C2c)

Table 3. The Impact of Equality on Productivity (1990-2025)

	$Prod_{it} = a + b\ Equal_{it} + e_{it}$			$\log(Prod_{it}) = a + b \log(Equal_{it}) + e_{it}$		
Equality Index (B50/T10)	144.2***	104.9***	84.2***	0.926***	0.481***	0.197***
(s.e.)	(3.4)	(3.5)	(3.9)	(0.035)	(0.036)	(0.036)
Human Capital Expenditure (% GDP)		174.3***	103.7***		174.3***	103.7***
(s.e.)		(8.2)	(10.3)		(8.2)	(10.3)
incl. Education			343.5***			343.5***
(s.e.)			(31.4)			(31.4)
R2	0.52	0.62	0.64	0.27	0.47	0.55
N.obs	1728	1728	1728	1728	1728	1728

Interpretation. Using a cross-country regression (48 main countries) over 1990-2025 period, we find a positive impact of equality on productivity. I.e. hourly productivity increases by 14.42€ if the equality index B50/T10 rises by 10 percentage points (say from 10% to 20%, i.e. from an income scale of 1-to-10 to 1-to-5). If we use a log specification rather than a liner regression, we find that productivity rises by 0.926% if the equality index rises by 1%. The positive impact of equality on growth declines as we introduce human capital expenditure (education + health, public + private, % GDP, average over previous 30 years), and especially when we introduce education, but the equality effect remains positive and significant.

Table 4. The Impact of Equality on Productivity (1800-2025)

	$ProductivityGrowthRate_{it} = a + b\ Equal_{it} + e_{it}$		
Equality Index (B50/T10)	0.086***	0.094***	0.090***
(s.e.)	(0.002)	(0.002)	(0.004)
Human Capital Expenditure (% GDP)			0.008*
(s.e.)			(0.004)
Country Fixed Effects	NO	YES	YES
R2	0.11	0.20	0.21
N.obs	9408	9408	9408

Interpretation. Using a panel regression (48 main countries) over the 1800-2025 period, we find that the annual productivity growth rate rises by about 0.9% per year (say from 1.0% to 1.9% per year) if the equality indew B50/T10 rises by 10 percentage points (say from 10% to 20%, i.e. from an income scale of 1-to-10 to 1-to-5). The effect is virtually unaffected by the inclusion of country fixed effects and human capital expenditure. **Note**. Growth rates are computed as average growth rates over past 30 years. Equality index and human capital expenditure are also computed as averages over past 30 years.