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Wealth and History: An Update

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JEL Classification: D30, E21, N30

Keywords: Wealth-income ratios, Wealth Inequality, capital share, economic history

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Wealth and History: An Update*

Daniel Waldenström†

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1 Introduction

The historical evolution of private wealth and its distribution addresses important questions about the workings of capitalist economies. In a series of path-breaking works that has attracted enormous attention among academics and policymakers alike, Piketty (2014) and Piketty and Zucman (2014, 2015) document and interpret trends in aggregate wealth stocks and wealth inequality in the Western world since industrialization.[1] Their key narrative describes how the role of capital depends on whether geopolitical shocks and redistributive policies can dominate market forces. Before World War I, untaxed and unregulated capital accumulated freely in Europe to generate extreme levels of aggregate wealth-income ratios and wealth inequality. The twentieth century saw a series of shocks to capital (wars, redistribution) that reduced capital's importance, but pro-market policy reversals in the 1980s and 1990s boosted wealth-income ratios and wealth inequality to historical highs.

A number of studies have scrutinized this narrative, focusing mainly on conceptual and theoretical aspects rather than the underlying empirical evidence (see Krusell and Smith 2015, Weil 2015, Blume and Durlauf 2015, Acemoğlu and Robinson 2015, Rognlie 2016, Madsen, Minniti and Venturini 2018, Humber, Krusell and Smith 2020). However, a more recent strand of papers has generated new empirical evidence on historical wealth trends in Western countries. Some of these revise the wealth-income ratios of Piketty and Zucman (Madsen 2019 on the United Kingdom and Albers, Bartels and Schularik 2021 on Germany) while others add new country observations (Waldenström 2016, 2017 on Sweden and Artola Blanco, Bauluz and Martínez-Toledano 2020 on Spain). Some other studies estimate new long-run trends in top wealth shares (Alvaredo, Atkinson and Morelli 2018 on the United Kingdom, Saez and Zucman 2016, 2020 and Smith, Zidar and Zwick 2020 on the United States, Garbinti, Goupille-Lebret and Piketty 2020 on France), capital-output ratios (Madsen, Minniti and Venturini 2021) and capital shares in national income (Bengtsson and Waldenström 2018).

In this paper, I analyze the new historical evidence on wealth-income ratios, wealth inequality and factor shares and how it matches the series of Piketty and Zucman (2014, 2015). The purpose is both to revisit the historical trends in aggregate wealth and wealth concentration, and examine if this affects our views of driving forces behind these developments. Focus is put on six Western economies for which long-run data series are currently available: France, Germany, Spain, Sweden, the United Kingdom and the United States.[2] The comparisons will not necessarily be about "right" or "wrong". The newer se-

[1] Piketty and Zucman is a continuation of a long-standing historical wealth literature, with contributions by, for example, Goldsmith (1962, 1985), Feinstein (1972), Atkinson and Harrison (1978), Williamson and Lindert (1980), Lindert (2000), and Soltow and Van Zanden (2001).

[2] The historical wealth literature is small, but growing and in the coming years the country sample will hopefully expand considerably.

ries have the advantage of building on the sources and choices made in the earlier works, but data uncertainties remain high and the results should be interpreted with caution.

Four main empirical findings are obtained. First, the new series suggest that pre-World War I wealth-income ratios were not as high in Europe as previously suggested. Piketty and Zucman (2014) estimate pre-World War I ratios at 600-800 percent of national income, much above the 400-500 percent in the United States and in later twentieth-century Europe. The new estimates instead place European wealth-income ratios at 500 percent, that is, equal to the United States and even lower than Europe today. It also suggests a less variable path of wealth-income ratios over the twentieth century and a more prominent historical role of the recent increases.

Second, the structure of private wealth changed over the past century. Around 1910, wealth was dominated by agrarian estates and business fortunes, both unequally distributed in the population. During the postwar period, wealth accumulation ws driven by housing and pension savings, both widely dispersed among households. This transformation from elite assets to popular wealth is central for understanding the distributional implications of aggregate wealth-income ratios.

Third, wealth concentration fell dramatically during the twentieth century and has remained historically low in Europe but increased in the United States. Top percentile wealth shares dropped from 50-70 percent around 1910 to 20-30 percent in the 1970s where they have remained in Europe while increasing up to almost 40 percent in the United States. Extending the wealth concept to also include offshore wealth or capitalized social security wealth does not change the long-run pattern.

Fourth, the capital and labor shares in national income, which offer a flow-based assessment of the role of wealth, are almost trendless over the twentieth century. This stability of the capital-labor split has implications for the interplay between marginal returns and factor intensities and for the overall distributional trends in recent decades.

The findings have implications for the historiography of Western wealth accumulation and wealth inequality. They cast doubts on claims that an unfettered, low-tax and low-regulation, capitalism, as in the nineteenth century, generates extreme levels of capital accumulation relative to income flows. They also suggest a smaller role of wars and progressive taxation to curb wealth accumulation and inequality than the previous literature has proposed. The World Wars had, of course, enormous effects on societies, but their impact on aggregate wealth-income ratios does not seem to have persisted in most countries (with Germany and France as possible exceptions) and, importantly, wealth trends look similar also in countries that never participated in these wars. Progressive taxes on capital and top incomes have restrained many large fortunes, but their effect is still of second order when compared to the impact of popular wealth accumulation in the broad population. Therefore, to gain a better understanding of the factors behind long-run wealth trends, an important next step is to analyze the drivers behind this broad

expansion of housing and pension savings. Useful hints are offered by the institutional changes in the late nineteenth and early twentieth centuries that initiated reforms of the educational system, raised human capital, and improved labor rights to eventually elevate earnings and life expectancy among ordinary people. These developments were important for the increases in homeownership rates and retirement savings. In other words, this study's findings emphasize the role of accumulation of new wealth from below rather than the depletion of existing wealth in the top for understanding the long-run patterns in wealth accumulation and distribution.

The rest of the paper is structures as follows. Section 2 analyzes the evolution of wealth-income ratios and their composition. In section 3, evidence on trends in top wealth shares are examined and in section 4, capital and labor shares in national income are discussed. Finally, section 5 concludes.

2 Wealth-income ratios in history

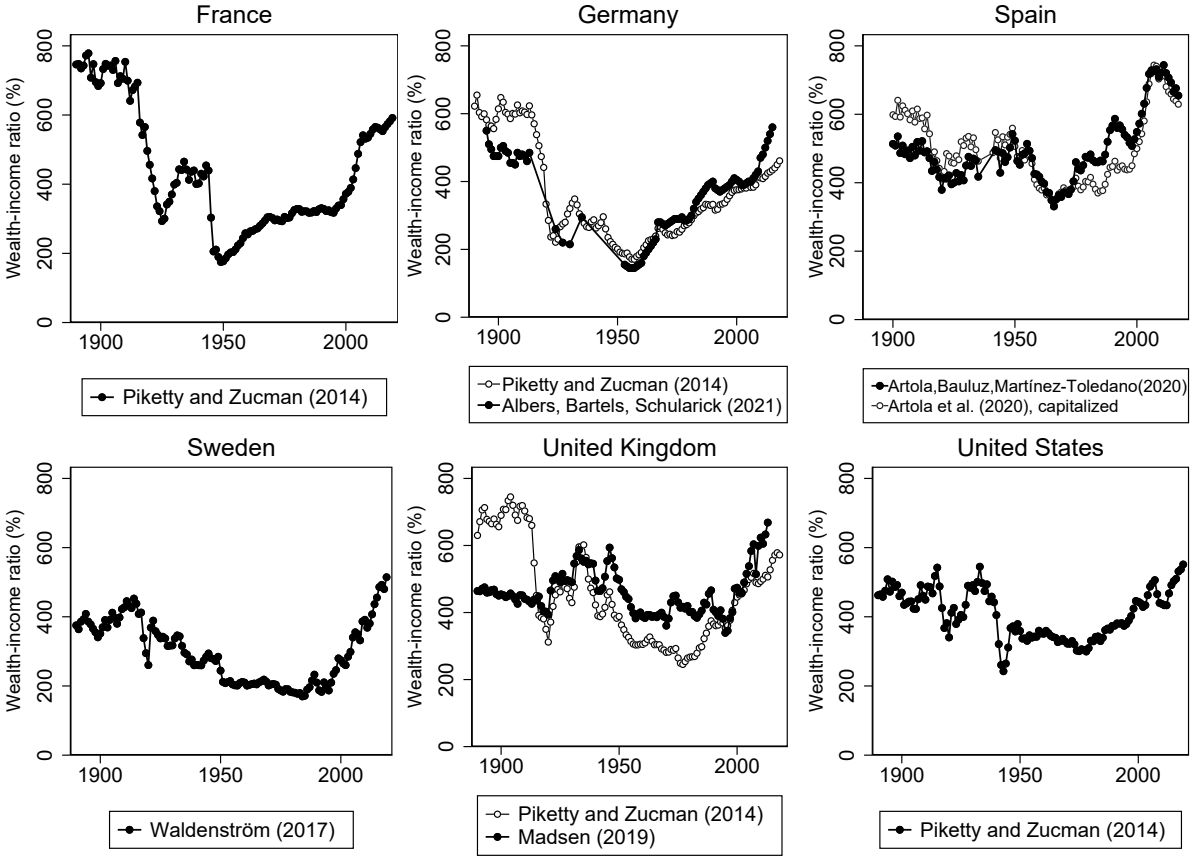
Figure 1 depicts the historical evolution of aggregate private wealth-income ratios in the six countries for which consistent, long-run evidence is available: France, Germany, Spain, Sweden, the United Kingdom and the United States. The series of Piketty and Zucman (2014) cover France, Germany, the United Kingdom and the United States, but revised series now exist for Germany (Albers et al. 2021) and the United Kingdom (Madsen 2019), and new series are presented for Spain (Artola Blanco et al. 2020) and Sweden (Waldenström 2016, 2017).

In the series of Piketty and Zucman, wealth-income ratios were historically high in nineteenth century Europe, around 600-800 percent of national income, and then they fell dramatically during both World Wars. They remained relatively low in the early postwar period but increased after 1980 to almost reach to the levels of a century earlier.

The revised and new country series for Europe give a different picture for the pre-World War I period, with substantially lower levels than in Piketty and Zucman (2014). In Germany, the wealth-income ratio was 500 percent instead of 600 percent, in the United Kingdom the level was 450 percent instead of 700 percent, and in Spain and Sweden the ratio stood at 450-500 percent of national income. The World Wars also come out as less pivotal than previously claimed. Despite short-run drops in most countries, and there was indeed substantial wartime capital destruction in all belligerent countries, looking over the entire century shows wealth-income ratios hovering around relatively stable levels up until the 1990s, especially in Spain, Sweden, the United Kingdom and the United States. In France and Germany, the World Wars seem to have had a larger and more persistent impact, but smaller in the revised German series.

A Europe-United States divide in wealth-income ratios was emphasized by Piketty and Zucman (2014). Figure 2's left panel shows that in their series, pre-World War I

Figure 1: Wealth-income ratios in history: Six countries



Note: The figure shows ratios of aggregate private wealth to national income, sources in main text.

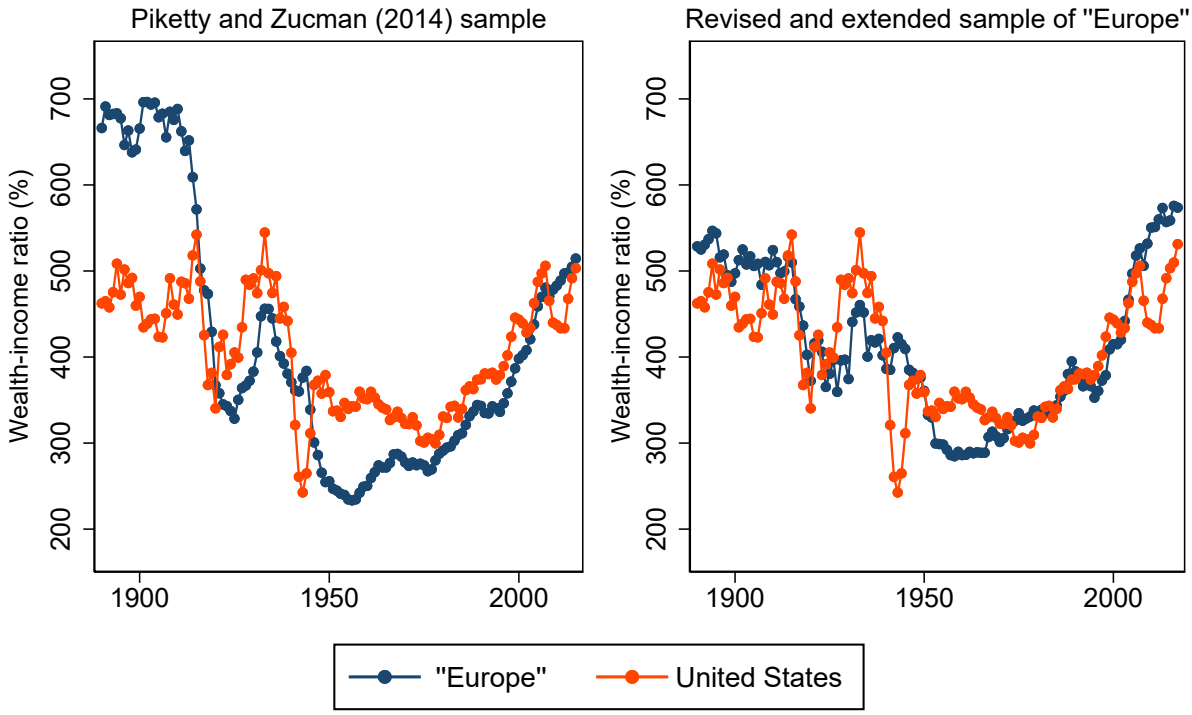
"Europe" (France, Germany and the United Kingdom) had an average ratio around 700 percent compared to only 400-500 percent in the United States. Their tentative explanations for this large difference is that European countries industrialized earlier and had more time to accumulate wealth, and that land was more abundant in the United States making it less valuable.[3] Figure 2's right panel instead uses the new series to compute the average for Europe, and this eliminates the Europe-United States divide before 1914 and makes the later twentieth-century trajectories even more similar.[4]

Altogether, the history of aggregate wealth-income ratios in Europe and the United States is being rewritten. The new series show rather convincingly that wealth-income ratios were not higher in the pre-war, pre-taxation era than in today's more democratic and state-controlled era. As further evidence, a new dataset on historical capital-output ratios for the same countries does also not find any evidence on large stocks of fixed capi-

[3]The role of past income and saving for long-run wealth-income ratios is discussed by Piketty and Zucman (2014) and it is empirically assessed for different countries by Madsen et al. (2018) and Ohlsson, Roine and Waldenström (2020).

[4]Appendix figure A1 shows the two panels with all individual countries, and appendix figure A2 the series when using population-weighted average for Europe, which does not change the results.

Figure 2: Wealth-income ratios in history: ”Europe” vs United States



Note: The figure shows aggregate private wealth-income ratios in ”Europe” (unweighted average) and the United States. ”Europe” in panel a: France, Germany, the United Kingdom (from Piketty and Zucman 2014); ”Europe” in panel b: France (Piketty and Zucman 2014), Germany (Albers et al. 2021), Spain (Artola Blanco et al. 2020), Sweden (Waldenström 2017) and the United Kingdom (Madsen 2019).

tal in the pre-World War I era.[5] The evidence also emphasizes the postwar increase, and in particular the post-1990 rise, which has lifted wealth-income ratios above twentieth-century and even nineteenth-century levels in all the studied countries (except France).

2.1 Pre-World War I: New estimates for Europe

How can one explain the large differences in European pre-World War I wealth-income ratios between Piketty and Zucman (2014) and the new studies? This section briefly discusses the main factors behind the new results for each country. It also introduces the role of home production of industrial goods, which does not count as income in the official national accounts but which was more important during the nineteenth century and, if it had been counted, would depress pre-World War I wealth-income ratios further.

United Kingdom: Madsen (2019) discusses at length why his projected wealth-income ratio is 250-300 percentage points (of national income) lower than the series of Piketty and Zucman (2014). Madsen's most important points of evidence are the following. Piketty and Zucman do not use the latest historical national income series (reported by Bank of England scholars in the 2010s) and their use of older series raises the wealth-

[5] See the analysis of historical capital-output ratios in appendix section B.2.

income ratio in the eighteenth and early nineteenth centuries by on average 77 percentage points. The Piketty and Zucman estimate for 1810-1901 includes the wealth recorded for South Ireland but no the national income of South Ireland, resulting in a ratio that is 90 percentage point higher assuming that the assets are evenly distributed across Irish regions. A couple of other data errors, one being a calculation mistake and one being double-counting of British and foreign government securities, result in a 80-90 percentage point overestimation in the 1700-1913 period. Farmers' mixed income and capital gains are counted as running profits from business and then capitalized into wealth stocks, which results in an overestimation of the wealth-income ratio by 90 percentage points. More generally, Madsen questions the overall plausibility of a dramatic fall in United Kingdom's wealth-income ratio between 1913 and 1920, which amounts to by 323 percent of national income. There were no equally large contemporaneous shifts in saving or income growth. Madsen questions that there were other war-related disturbances to the financial system or increased marginal income taxes on top incomes that could account for such a large drop.[6] He also points out that a potential explanation for the recorded drop is that Piketty and Zucman switch to a new historical wealth data source in 1920 (Feinstein 1972), which, if corrected for, suggests that the remaining difference would be a pure data artifact. Madsen concludes that an overestimated pre-war level should the main explanation for these inconsistencies.

Germany: Albers et al. (2021) present a new wealth-income ratio for Germany that is 100-150 percentage points lower than the series of Piketty and Zucman (2014) for the pre-World War I period. In their appendix, the authors present their historical sources from the era of the German Empire and discuss how these matter for generating national wealth estimates and how to account for the differences relative to the series of Piketty and Zucman. Albers et al. show that the main reason for their lower estimate in the pre-1914 period is the valuation of land and agricultural assets. They argue that their estimate is more credible since they use observed tax-assessed records whereas the sources of Piketty and Zucman are based on problematic capital stock estimates, which are likely to have exaggerated the value of land and agriculture. Albers et al. use first-hand sources from the German administration records, which have limited interests to overestimate the value of items, including omitted assets. Another, but less important, reason for the difference between Albers et al. and Piketty and Zucman pertains to estimations of net foreign assets, which appears to have been too large in the sources of Piketty and Zucman.

Spain: Historical wealth-income ratios for of Spain since 1900 are generated by Artola Blanco et al. (2020). Its level is closer to the series for United States, Germany, Swe-

[6] On this point, he is actually supported by a new study of historical trends in stock market capitalization, which finds no structural break in the total stock market capitalization in the United Kingdom around World War I (Kuvshinov and Zimmerman 2022).

den and Madsen's series for the United Kingdom than to Piketty and Zucman's European series. The Spanish series is constructed using the same template as Piketty and Zucman (2014). It draws partly on previous works on historical national accounts (for example, Prados de la Escosura and Rosés 2012), but it is largely based on newly collected material from different historical sources that are transparently presented and discussed. I use as benchmark the series in which corporate assets are valued based on the value of their net assets. This series is credible as it is derived from the most reliable historical sources and the paper's appendix presents thorough analyses and checks against other sources that confirm its reliability. An alternative series contains an upward price adjustments of business equity using either market-to-book ratios, estimated from newly constructed historical stock exchange price indexes, or capitalized firm profits. This alternative series, presented in figure 1 and in appendix figure A3, generates 100 percent of national income higher level in the 1900-1913 period. However, although it is in principle relevant, there are great uncertainties regarding these adjustments. Early historical stock exchanges were underdeveloped and typically associated with quite small trading volumes, resulting in thin markets and potentially unrepresentative listed prices (often driven by the trading in a few, dominant stocks), which has been found in other studies of early stock markets in industrializing economies (for Stockholm, see Waldenström 2014, 2016 and Rydqvist and Rong 2021; for Berlin and Madrid, see Moore 2010). Furthermore, Kuvshinov and Zimmerman (2022) find no trend or large swings in their newly created series on the Spanish stock market capitalization during the period 1900-1925. Finally, the method of capitalizing profits to construct capital values for unincorporated enterprises is a highly uncertain procedure that is sensitive to the definition of profits relative other income components such as mixed income and, in particular, choice of capitalization interest rate.

Sweden: The Swedish wealth-income ratio is estimated by Waldenström (2016, 2017) for the period since 1810 and it follows the standard national accounts definitions and the same methodological approaches as Piketty and Zucman. Sweden's wealth-income ratio before World War I hovers between 250 and 450 percent of national income, with an average of 350 percent and highest levels recorded in the early 1910s. Sweden thereby also deviates from the higher European pre-World War I levels of Piketty and Zucman and is closer to the lower levels seen in Spain, the revised series for Germany and United Kingdom, and also in the United States.

Finally, another factor that potentially brings down pre-World War I wealth-income ratios even further is the unaccounted home production of industrial goods. During the nineteenth century, home production of foodstuff, leather works, metal products and so forth was more common than in later periods (and certainly today). However, the national accounts excludes all production of goods and services not sold on a market, implying that any income, imputed or actual, from the sale of home-produced goods and

services are unaccounted for in national income. Economic historians have estimated the value of home production and added it to national income in order to get a better estimate of actual income flows during the industrializing era. Edvinsson (2013) extends national income in Sweden to include industrial home production. Using his estimates lowers the Swedish wealth-income ratio before World War I by 10-50 percentage points.[7] It is possible that the large Continental European countries were more advanced during this period, which could suggest a somewhat lower impact on wealth-income ratios in these countries.

2.2 Postwar increase: The rise of popular wealth

The gradual increase in wealth-income ratios during the postwar era, an especially the rapid increase after 1990, stands out historically. This section looks closer at this development by decomposing aggregate private wealth into three broad asset classes: housing wealth, pension wealth, and all other assets.[8]

Figure 3 shows that most of wealth growth in the postwar period is associated with housing wealth and funded pensions. Their share of total wealth has tripled since 1950, going from 25 percent to around 75 percent.[9] Housing asset increases dominate in Spain, Germany and France over the entire period, with remarkably small amounts of funded pensions accumulated in these countries according to the national accounts. In Sweden, the United Kingdom and the United States, housing wealth has also been important, but since the late 1970s there has also been a rapid growth of funded pension wealth, which today represents around one-quarter of total household wealth.

In a famous account, Atkinson and Harrison (1978) described this process as the rise of popular wealth, referring to the wide dispersion of these assets in the British population. Similar observations have later been made during the same period by Roine and Waldenström (2009) for Sweden, Wolff 2017 for the United States, Kuhn, Schularik and Steins (2020) for Germany and Martínez-Toledano (2020) for Spain.[10]

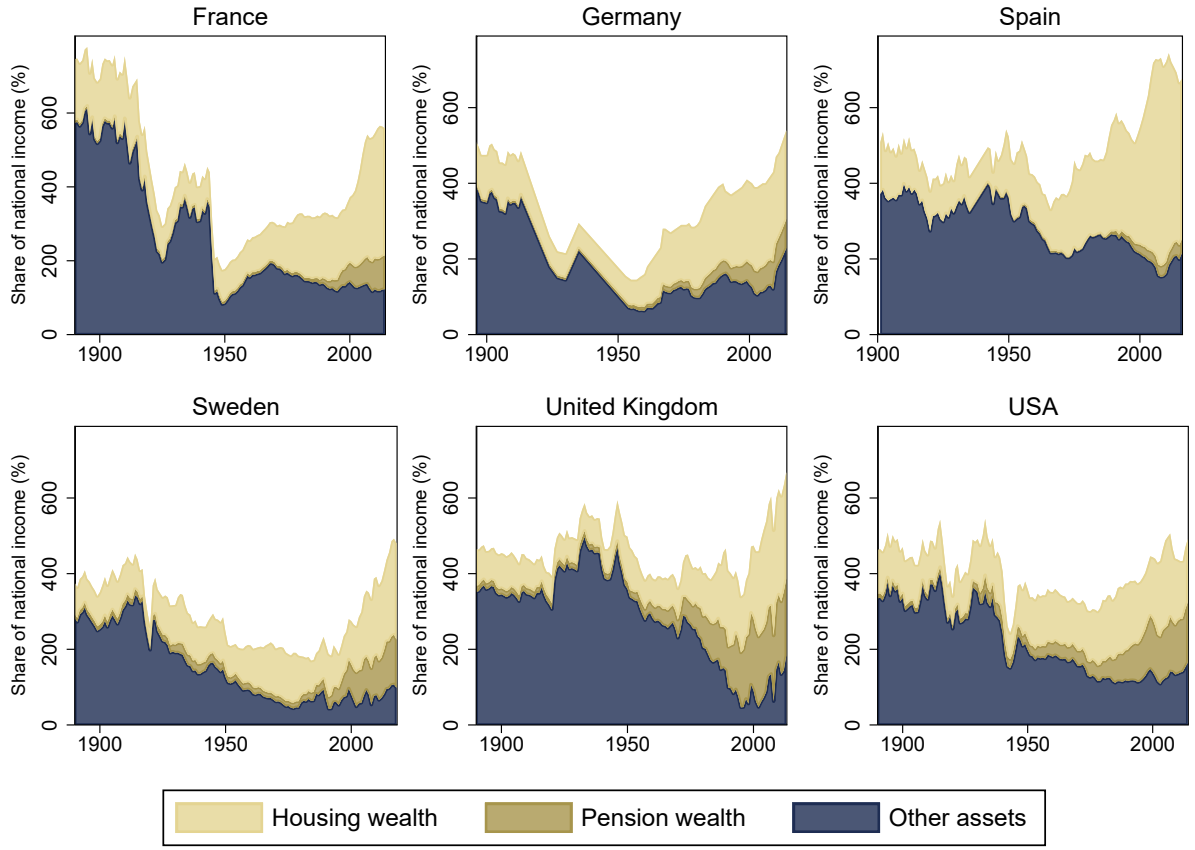
[7] See appendix figure A4. The main industries are textiles and leather, foodstuff, wood and engineering. The calculation uses intermediate consumption of raw materials in home crafts, calculated by deducting intermediate consumption of raw materials in factories and handicrafts from the total supply of raw materials, which in turn is drawn from outputs of agriculture, mining and net imports. The value-added across home industries is then supplemented to the rest of the economy's value-added (baseline GDP). Note that home production units are included in the wealth numerator as unincorporated business equity.

[8] Data on wealth components come from WID (www.wid.world). Housing wealth consists of the asset values of dwellings (constructions AN.111 and their land AN.2111, using the ESA2010 notation) and shares in tentant-owned associations (the main part of AF.519). Pension wealth consists of funded pension and insurance savings, measured as the total value of the AF.6 financial asset class. Note that AF.6 contains some minor items not directly related to pensions, especially technical insurance reserves (AF.61).

[9] Appendix figure A5 presents the compositions as shares of the total wealth-income ratio.

[10] Note that Atkinson and Harrison referred primarily to housing assets and durable consumer goods, which are both contained in the probated wealth of deceased individuals that are the main data source in the British household wealth statistics.

Figure 3: Decomposing aggregate wealth-income ratios since 1890



Note: "Housing wealth" is the value of dwellings (buildings and land, AN.111 + AN.2112). "Insurance savings, pensions" is the financial accounts item covering life insurances, pension funds etc. (entire post AFA.6). "Other assets" is the remainder of private net wealth. Sources are WID (www.wid.world) and those in figure 1. Annual levels are observed for all years in Sweden. For housing values (net of estimated mortgages), annual levels are observed all years for the United Kingdom (Madsen, 2019), and for the other countries they are linearly interpolated from estimates of single years in Piketty and Zucman (2014). Funded pensions are for the early periods set equal to the earliest observed value (1970 in France, 1950 in Germany, 1913 in Spain, 1948 in the United Kingdom and 1913 in the United States).

There are several factors that account for the rise of popular wealth over the twentieth century. The 1910s and 1920s was an era of rapid political democratization, reforms that spread educational attainment to broader groups and labor rights improvements, which in turn lifted earnings and opportunities to acquire mortgages for homes and purchase durable consumption goods.[11] Early on, it was primarily high-paid workers with some wealth who accumulated new wealth to catch up with the richest percentile, as evidenced by falling top percentile shares while top decile shares remained fairly stable.[12] After 1950, homeownership expanded to broader groups in the population and both top percentile and top decile wealth shares started falling. The housing wealth ac-

[11] See Acemoğlu and Robinson (2006) for a discussion of how political and economic institutions influence, and are influenced by, economic and political outcomes, including economic inequality.

[12] Appendix figure A6 shows that top decile wealth shares were fairly stable up to 1950. See also a more detailed account in the case of Sweden in Roine and Waldenström (2009).

cumulation up to the 1980s was primarily driven by new savings in purchasing newly built homes, which was part of a organized popular movement to increase private home-ownership in many countries. The post-1980 rise in housing wealth is mainly associated with an asset price effect. The recent boom in house prices across Western metropolitan areas is well-documented (Knoll, Schularick and Steger 2017), and several studies have recognized its role in the rising wealth-income ratios (Weil 2015, Bonnet et al. 2014, Artola Blanco et al. 2020). The pension wealth growth after the 1970s is driven by both savings and capital gains. The former effect reflects the gradual shift from benefit-based to contribution-based pension systems around the world, which has channeled capital into funded pensions. The remarkable boom in post-1980 stock prices have generated large capital gains for all holders of listed corporate shares, and this has also boosted the value of funded pension wealth.

Altogether, the twentieth century wealth composition has changed profoundly in the Western countries. Around 1900, wealth was dominated by agricultural estates and corporate wealth, assets predominantly held by the rich. Over the twentieth century, housing and funded pension savings became the largest components of aggregate wealth, and these are assets held by ordinary people. The next section continues this analysis by examining the wealth distribution trends.

3 Wealth concentration trends

How wealth is distributed among households is an important aspect of private wealth in society, and it has implications for how we interpret the trends in aggregate wealth-income ratios. For example, if newly accumulated capital accrues mainly to a small elite or more broadly in the population tells us what forces are underlying this accumulation and it could also have political economy effects on taxation or the regulation of the financial system.[13]

Figure 4 presents the most recent evidence on the evolution of top percentile wealth shares over the past century.[14] Its clearest message is that time trends look almost the same in all countries. Wealth concentration was exceptionally high a century ago, with the richest percentile owning between 50 and 70 percent of all private wealth.[15] From

[13]Discussions of theoretical models of wealth inequality are presented in Davies and Shorrocks (2000), Cagetti and De Nardi (2008), Piketty and Zucman (2015) and Hubmer et al. (2020).

[14]The following data sources are used. France: estate tax returns and capitalized capital income (Garbinti et al. 2020, Piketty et al. 2006); Germany: mainly wealth tax returns (Albers et al. 2021); Spain: estate tax returns, wealth survey, capitalized capital income (Miguel Artola and Facundo Alvaredo for 1901-1958, (Martínez-Toledano 2020 for 1984-2015); Sweden: wealth tax returns, third-party reported registry wealth, capitalized capital income (Roine and Waldenström 2009, Lundberg and Waldenström 2018); United Kingdom: mainly estate tax returns (Alvaredo et al. 2018, Cummins 2021); United States: capitalized capital incomes, wealth survey (Saez and Zucman 2016, 2020, Smith et al. 2020, Wolff and Marley 1989, Sabelhaus and Henriques Volz 2020

[15]The literature has no good explanations for this large variation in top wealth shares. Roine and

the 1920s to the 1970s, wealth concentration fell dramatically in the Western world. The previous section showed how this period saw the emergence of new housing and funded pension wealth as the *primus motor* behind the compositional change in aggregate wealth-income ratios. The distributional implications of this shift in the form of strong equalizing forces, have been emphasized in several previous studies, first Atkinson and Harrison (1978) and then more recently by Roine and Waldenström (2009), Kuhn et al. (2020) and Martínez-Toledano (2020).

Since the 1970s, wealth equalization has stopped and top wealth shares have remained historically low in Europe but increased in the United States. The stable post-1970 top wealth shares are not specific for the countries studied here, but are found also in several other Western economies (see Roine and Waldenström 2015, Jakobsen et al. 2020). This stability of top wealth shares may seem contradictory to the rapid increase in aggregate wealth-income ratios (figure 1), but it is consistent with the larger shares of housing and pension assets in aggregate wealth today, which means that asset price effects today are more evenly distributed than a hundred years ago.[16]

A somewhat different explanation model for this long-run wealth equalization is offered by Piketty and Zucman (2014), and also Scheidel (2018). They emphasize the role of wars and financial crises for reduced both aggregate wealth and top fortunes, and thus wealth shares. Progressive taxation and market regulations later emerged to reinforce this development, in particular by preventing new large fortunes from reemerging. It is, of course, difficult to identify the impact of wars, taxes and regulations on aggregate capital accumulation and wealth inequality in the current empirical setting. Wars and taxes surely curbed many large fortunes through demolition, slashed accumulation incentives and punitive taxation.[17] However, higher postwar income and payroll taxes on labor incomes also hindered private savings among less wealthy households, which lowers the wealth-equalizing effect of postwar taxes. When comparing the war and tax-related wealth reductions in the top with the vast amounts accumulated in housing and pension savings in the large bottom and middle of the distribution during the postwar era, it could be argued that wars and taxes were not the most important drivers of historical wealth accumulation and equalization trends of the twentieth century.[18]

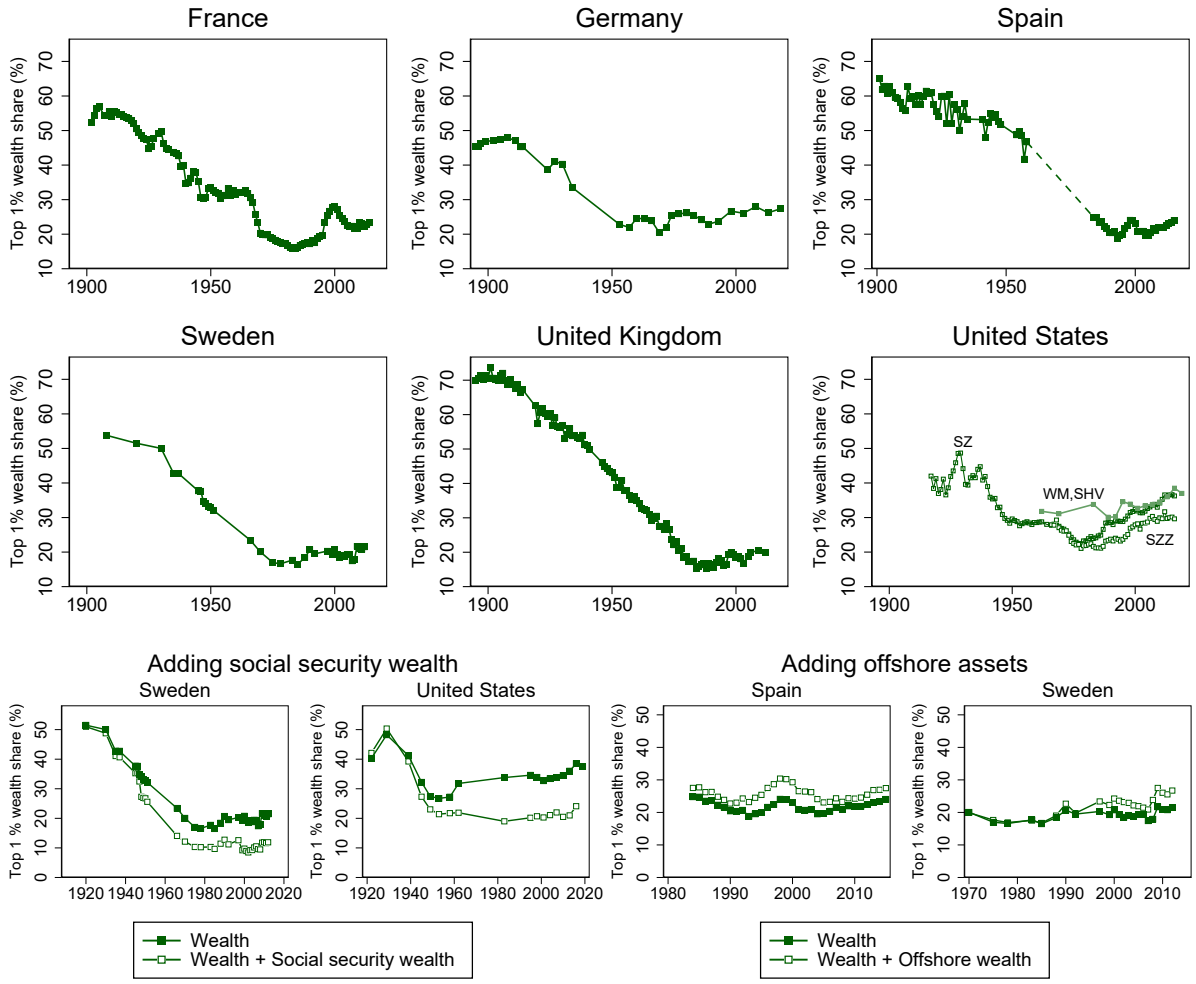
Waldenström (2015) discuss the possible role of the stage of economic development and political-economic conditions. In general, estimating historical wealth inequality is difficult because of data scarcity and conceptual issues, which is discussed extensively in the previous literature, see Atkinson and Harrison (1978), Lindert (2000), Soltow and Van Zanden (2001), Roine and Waldenström (2015), Wolff (2017), Alvaredo et al. (2018) and Bengtsson et al. (2018).

[16]Note that the rise in a few, super-large, fortunes over the past decades may well imply that the wealth shares of much smaller top groups in the very top, such as the top 0.1 or 0.01 percentiles, have increased as discussed by, for example, Bricker et al. (2016); Bricker, Hansen and Henriques Volz (2019) and Bach, Thiemann and Zucco (2019)).

[17]The link between There are few papers that have studied the impact of war bombings on inequality. Heldring, Robinson and Whitfill (2021) finds that World War II bombings lowered wealth inequality in Northern England and raised the support for the Labour Party.

[18]For discussions of twentieth century redistribution and their distributional importance, see Piketty

Figure 4: Top 1% wealth share in six countries, 1896-2019



Notes: The series show top one percentile share of total private wealth, with some differences in definitions of wealth and populations. Sources: France: Garbinti et al. (2020), Piketty et al. (2006); Germany: Albers et al. (2021); Spain: Miguel Artola and Facundo Alvaredo for 1901-1958, Martínez-Toledano (2020) for 1984-2015; Sweden: Roine and Waldenström (2009), Lundberg and Waldenström (2018); United Kingdom: Alvaredo et al. (2018); United States: "SZ" is Saez and Zucman (2016, 2020), "SZZ" is Smith et al. (2020), "WM,SHV" is Wolff and Marley (1989), Sabelhaus and Henriques Volz (2020).

3.1 Adding social security wealth and offshore assets

Postwar institutional and technological changes have led to the emergence of two new types of personal assets that are not part of the conventional wealth concept but still potentially important to wealth inequality: social security wealth and offshore assets. This section reviews evidence on these assets and their distributional impact over time.[19]

Social security wealth is a summary concept, capturing the idea that entitlements to future pensions and other social insurance incomes in unfunded pension and social security systems have a capital value today. This value is not counted as wealth in the stan-

(2014), Scheve and Stasavage (2016), Scheidel (2018) and Rubolino and Waldenström (2019)).

[19]See appendix section B.1 for details in the calculation of top wealth shares including social security wealth and offshore assets.

dard definition because it has no balancing liability on behalf of policyholders, merely their promises about future incomes.[20] Despite this, some scholars have argued that the these entitlements crowd out private saving for old age, sickness etc., and could therefore be regarded as equivalent to private wealth (see, for example, Feldstein 1974). There are several attempts to measure the value of social security wealth, especially unfunded pension wealth, but few have also estimated their distribution and historical evolution. I have only found such historical time series for two countries in the present country sample: Sweden and the United States. For the United States, I use aggregate data from Wolff and Marley (1989) and Wolff (2011) covering years since 1922, and Sabelhaus and Henriques Volz (2020) for the period since 1995.[21] For Sweden, I use wealth aggregates from Waldenström (2016, 2017) and top wealth shares from Roine and Waldenström (2009) and Lundberg and Waldenström (2018), covering the period 1920-2012, including additional adjustments made here to include unfunded pension wealth.

Figure 4's bottom panel shows that top wealth shares drop profoundly when adding assets in unfunded pensions and other social security wealth. The top percentile's share drops by approximately half in the modern era. In Sweden, it drops from 20 percent to 10 percent and in the United States, it drops from 35 percent to 20 percent. Notice that the effect has not always been this large. Before the 1950s, social insurance and pensions were small and resembled today's poor-relief rather than modern social insurance. The establishment of population-wide welfare systems in the 1960s brought the pay-as-you-go pension system and more universal coverage.

Offshore wealth is difficult to measure because it is often associated with tax-driven incentives to hide wealth in tax havens. Its value has been estimated in several studies using data from cross-checked national balance sheets, accumulated balance of payments residuals, Swiss central bank records and listings of individual account holders in leaked documents (Alstadsæter, Johannessen and Zucman 2019, Roine and Waldenström 2009, Martínez-Toledano 2020). However, consistent time series are scarce and was found only for two countries: Spain in 1984-2015 (Artola Blanco et al. 2020, Martínez-Toledano 2020) and Sweden in 1970-2012 (Waldenström 2017, Roine and Waldenström 2009, Lundberg and Waldenström (2018)). The bottom panel of figure 4 shows that top wealth shares increases when adding hidden offshore wealth, which is disproportionately accruing to domestic rich groups. In Spain, the top share increases by roughly one-fifth, from 20-25 percent to 25-30 percent of total wealth. In Sweden, the top percentile share increases almost as much, from 18-22 percent to 22-26 percent. This pos-

[20] In recent years, some pension systems have introduced partial requirements of private and public bodies to back the future pension promises with funds.

[21] Catherine, Miller and Sarin (2021) make similar computations as Sabelhaus and Henriques Volz (2020), but use different assumptions about discount rates when valuing social security wealth, which leads to higher values in recent years and a flatter overall wealth concentration trend. Saez and Zucman (2016, 2020) do not analyze unfunded pension wealth or social security wealth, and the series of these outcomes that they present in their appendix deviates from those presented by other authors.

itive impact is economically significant, and even though it does not change the overall long-term equalization result, it indicates that wealth concentration is higher in some European countries when considering the capital flight to tax havens.

Altogether, these two extensions show that although wealth concentration levels are affected by adding estimates of social security wealth and offshore wealth to the standard wealth concept, the long-run equalization trend in wealth concentration remains.

4 Capital and labor shares of national income

A different perspective of wealth in history comes from looking at the flow of wealth returns in relation to total income, which is the capital share in national income. Piketty and Zucman (2015) argue that the substitutability of labor for capital, a key dimension in the technological transformation of society, is such that rising wealth-income ratios leads to rising capital shares. In contrast, Rognlie (2016) argues that evidence suggests no such linkage or, if anything, even a negative one.[22] This section aims to shed light on this issue by presenting long-run trends in capital and labor shares net of depreciation in the six countries studied above using data from Bengtsson and Waldenström (2018).[23]

Figure 5 shows that factor shares have developed along similar lines in the six countries. France, the United Kingdom and the United States have experienced almost constant capital shares in the past century, around 15 percent in France and 20 percent in the United Kingdom and United States. In Germany, Spain and Sweden, the capital shares were higher, and more volatile, in the first half of the century, but then fell to lower, and more stable levels in the postwar period. In Germany and Spain, the capital share fell from 30 to 20 percent and in Sweden from 40 to 20 percent. After 1990, there have been a slight upward trend in the capital share in Spain and the United States while it has been slightly decreasing in France, Sweden and the United Kingdom.

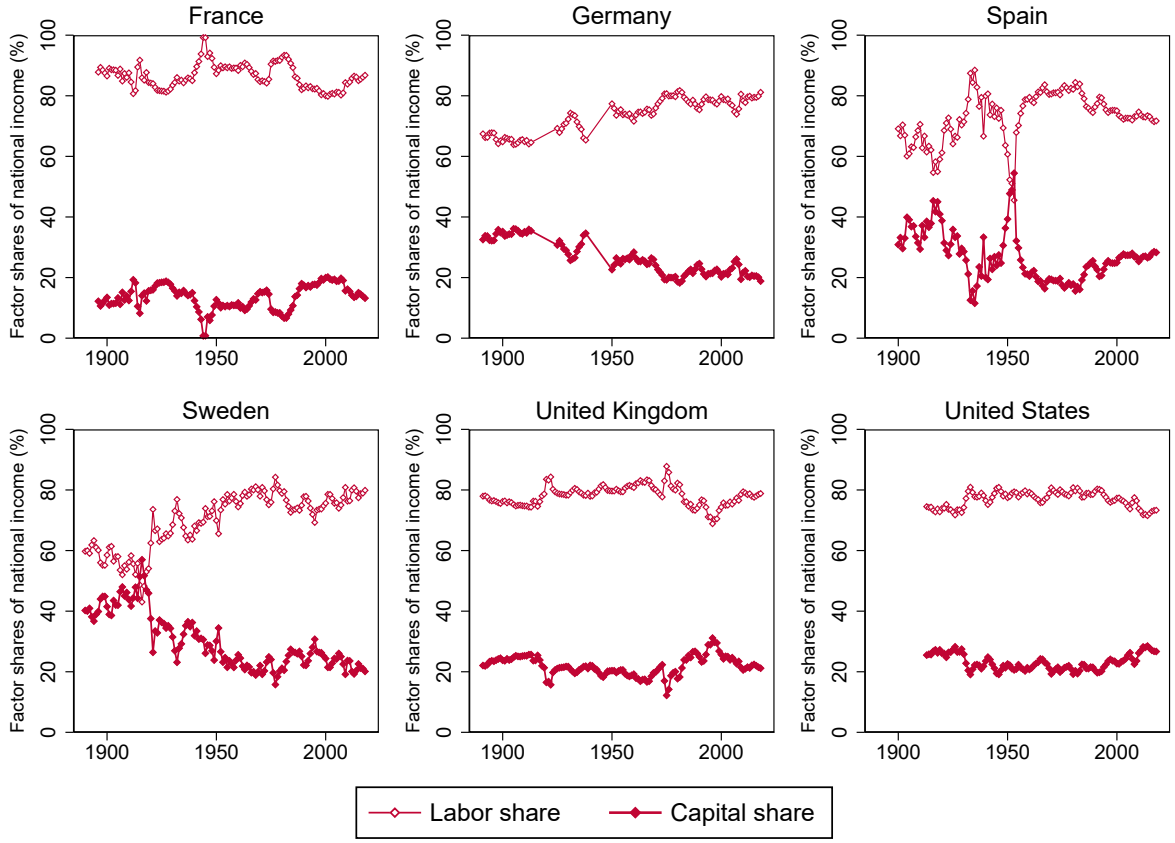
This long-run stability of capital and labor shares contrasts with the trajectories of wealth-income ratios, especially in recent decades, and top wealth shares.[24] Explaining this varying association is beyond the scope of the present study, but, if anything, it casts doubts over the existence of a uniform relationship between aggregate wealth-income ratios, wealth concentration, and capital shares.

[22] If one describes the economy as a CES function with output being produced by capital and labor inputs such that $Y = f(K,L) = (\alpha K^{\frac{\sigma-1}{\sigma}} + (1-\alpha)L^{\frac{\sigma-1}{\sigma}})^{\frac{\sigma-1}{\sigma}}$, the return to capital is $r = f_K(K,L)$ and the capital share $\alpha = r \times K/Y$, then the relationship between aggregate capital accumulation and the capital share depends on σ, the degree of substitutability between capital and labor in production. If $\sigma < 1$, the capital share increases when the wealth-income ratio increases, with $\sigma < 1$ it falls and with $\sigma = 1$ it remains constant.

[23] The results do not change if the capital share includes capital depreciation as shown in Figure 5.

[24] These relationships have not been studied systematically in the previous literature, but a correlation matrix in appendix table A1 confirms the lack of a strong consistency in correlations between these outcomes. Coefficients are generally positive and statistically significant, but for some countries they are virtually zero or statistically insignificant.

Figure 5: Capital and labor shares in six countries, 1890-2018



Sources: Series show labor and capital shares in national income net of capital depreciation capital depreciation (consumption of fixed capital). Data come from Bengtsson and Waldenström (2018) and build on historical estimates by Piketty and Zucman (2014) (France, Germany, United Kingdom), Prados de la Escosura and Rosés (2012) (Spain) and Edvinsson (2005) (Sweden). All series are harmonized to match the current series of the European Commission's AMECO database for 1960 onward.

5 Concluding remarks

The results in this paper shed new light on capital's role in Western market economies. The empirical analysis established four broad facts. First, aggregate wealth-income ratios were not as high before pre-World War I as previously thought. Second, the structure of private wealth has changed over the twentieth century, from being dominated by elite fortunes in agriculture or businesses to consisting mainly of widely dispersed assets in housing and funded pensions. Third, wealth concentration fell until the 1970s after which it has remained low in Europe but increased in the United States. Fourth, the capital share in national income has been fairly stable over the past century, especially in the postwar era.

These new findings have implications for the historiography of Western wealth accumulation and wealth concentration. They cast doubt over the view that an unfettered capitalism, such as in pre-democratic and pre-taxation nineteenth-century Europe, gen-

erates extreme levels of capital accumulation. The new findings also question the pivotal role of wars, crises and progressive taxation as the sole important factors behind the wealth equalization of the twentieth century. While the World Wars surely affected Western societies in a multitude of ways, their direct impact on aggregate wealth does not seem to have been long-lived in most countries, and countries not participating in the wars still experienced the same wealth trends as belligerent countries did. More important were the institutional reforms of the early and mid-twentieth century that spurred democratic change, educational reforms and labor rights, all of which lifted the incomes of broad groups in the population and offered them opportunities to save privately in housing and future pensions. The postwar hikes in progressive taxation and market regulations, which were of course an indirect result of the war shocks, contributed to wealth equalization by curbing the growth of large fortunes. However, their importance for overall wealth accumulation and equalization is mitigated by the fact that the higher taxes also curbed wealth accumulation of ordinary people, making their overall distributional impact ambiguous. As a contrast, the vast accumulation of popular wealth accumulated by households throughout the distribution had a clearly equalizing effect, and was a key force behind overall wealth accumulation and the long-run wealth equalization trend.

Naturally, a study like this leaves many questions unanswered. For example, the recent evolution of super-large fortunes in the globalized economies could warrant specific attention, as could the problem of wealth for the large groups left behind because they are jobless and do not own their homes. The extremely complex nature of the historical source material regarding both macro and micro data on wealth also implies that the current results may well be modified by future studies. In other words, there is an interesting future ahead for the study of the historical development of wealth.

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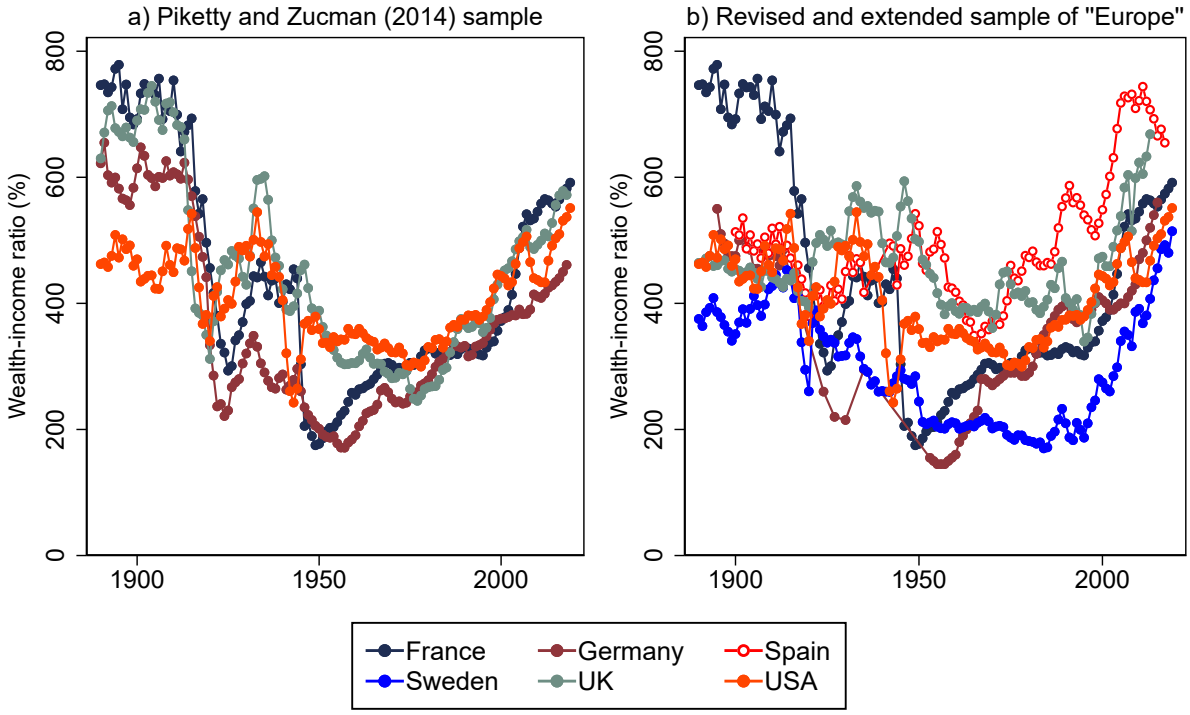
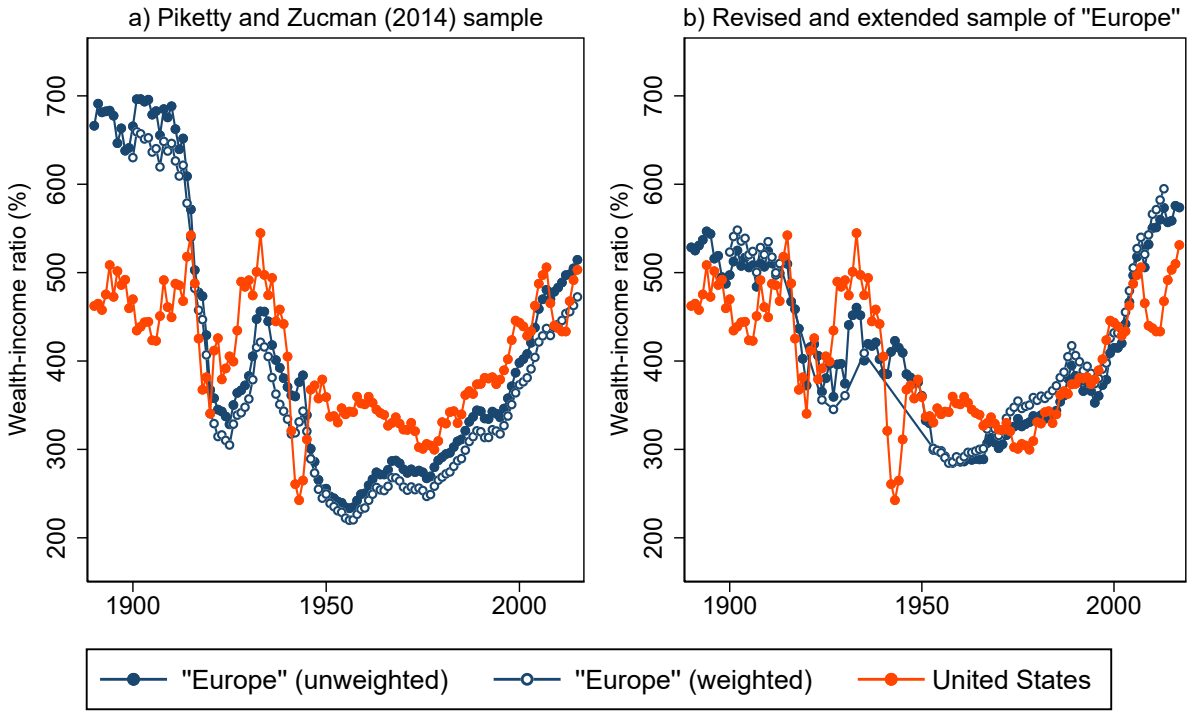
A Robustness and additional results

Figure A1: Wealth-income ratios in Europe and the United States since 1890



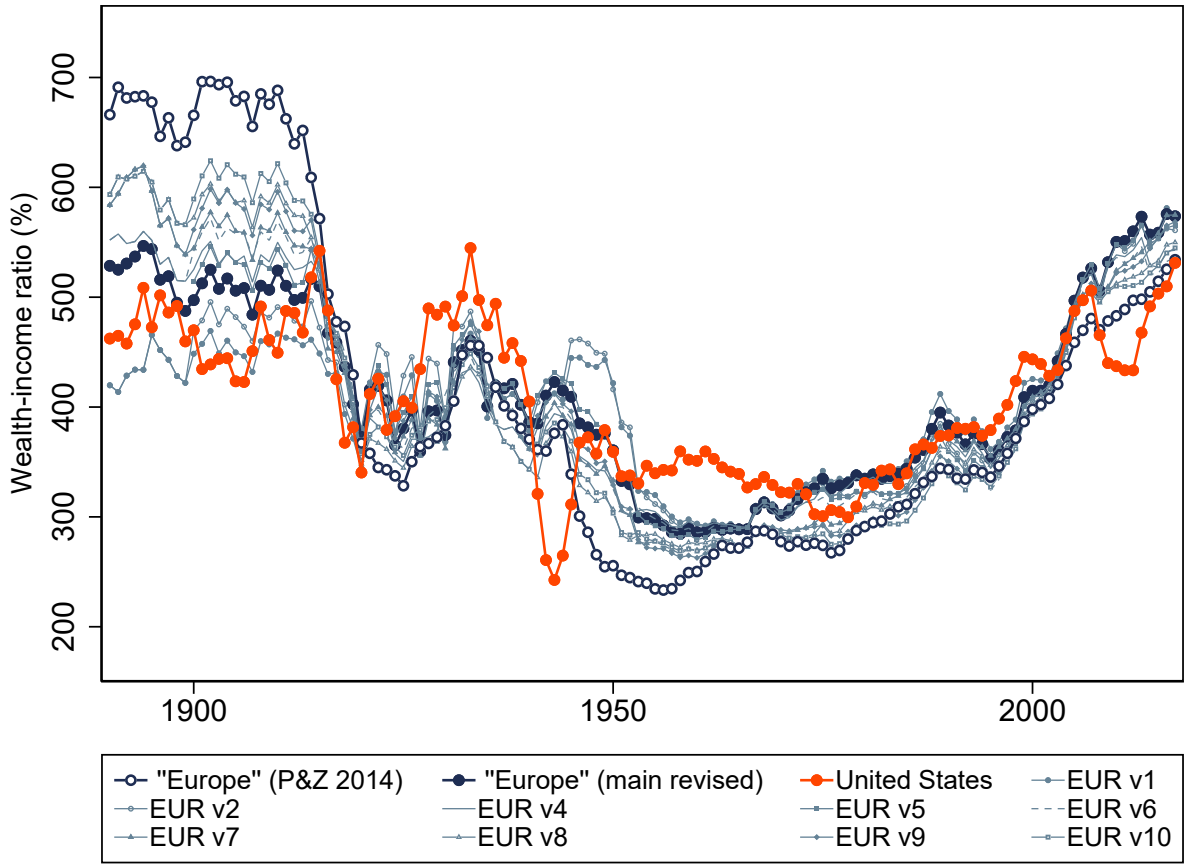
Note: Sources are the same as in Figure 1.

Figure A2: Using population-weighted average wealth-income ratios in Europe



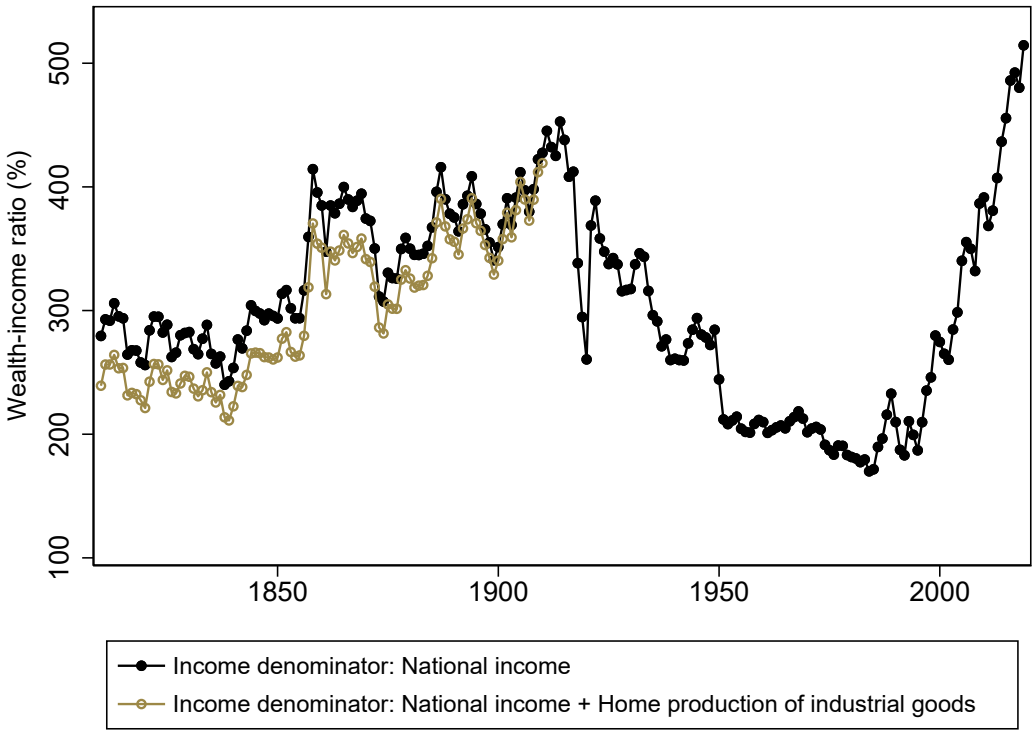
Note: Population weights are based on full populations collected from WID (www.wid.world). Sources are the same as in Figure 1.

Figure A3: Sensitivity analysis of average European wealth-income ratio



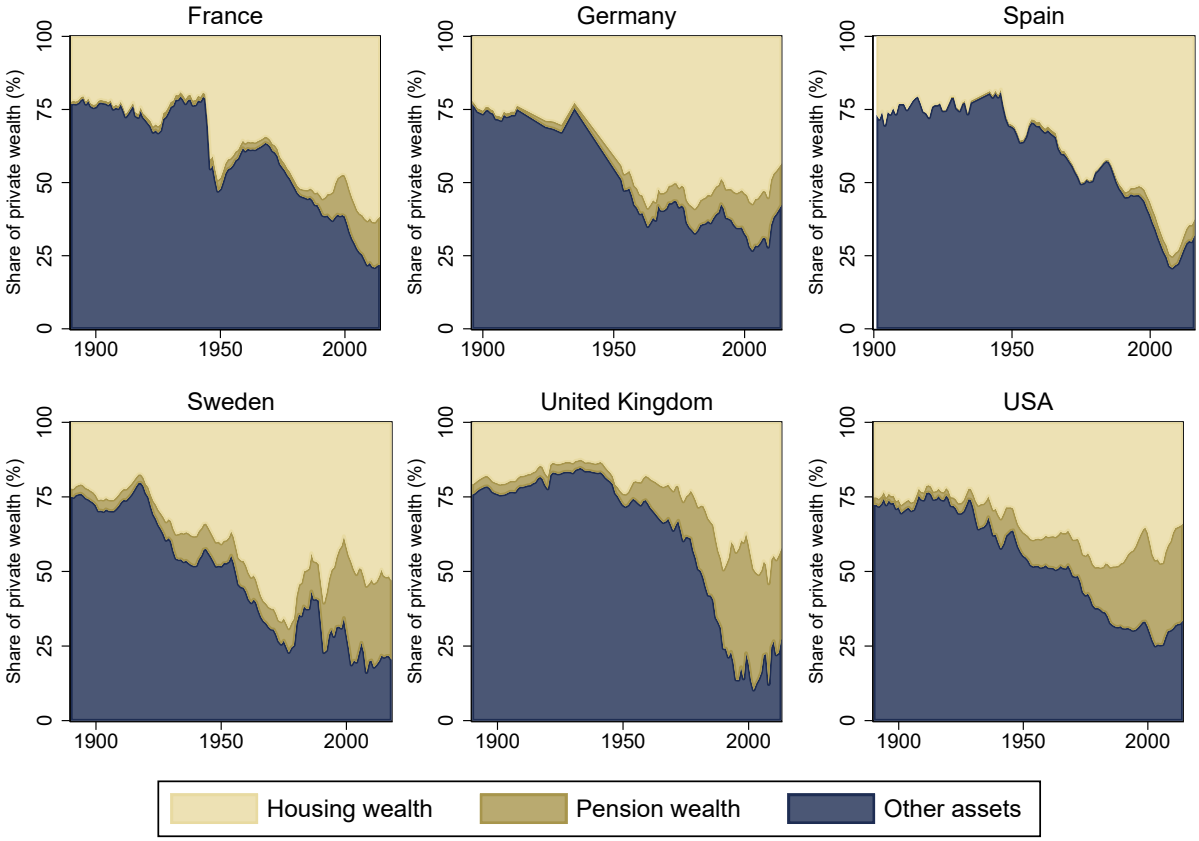
Note: Variants for average of Europe is constructed as follows. v1:DE(ABS), ES, SE, UK(M); v2:DE(ABS), ES-cap., SE, UK(M); v3:FR, DE(ABS), ES, SE, UK(M); v4: FR, DE(PZ), ES, SE, UK; v5:FR, DE(ABS), ES-cap., SE, UK(M); v6:FR, DE(PZ), ES-cap., SE, UK(M); v7:FR, DE(ABS), ES, SE, UK(PZ); v8:FR, DE(PZ), ES, SE, UK(PZ); v9:FR, DE(ABS), ES-cap., SE, UK(PZ); v10:FR, DE(PZ), ES-cap., SE, UK(PZ). "ABS" is Albers et al. (2021), "ES-cap." is Spain with capitalized estimates of corporate equity for historical periods, "M" is Madsen (2019) and "PZ" is Piketty and Zucman (2014). Sources are the same as in Figure 1.

Figure A4: Wealth-income ratio in Sweden with and without home production in GDP



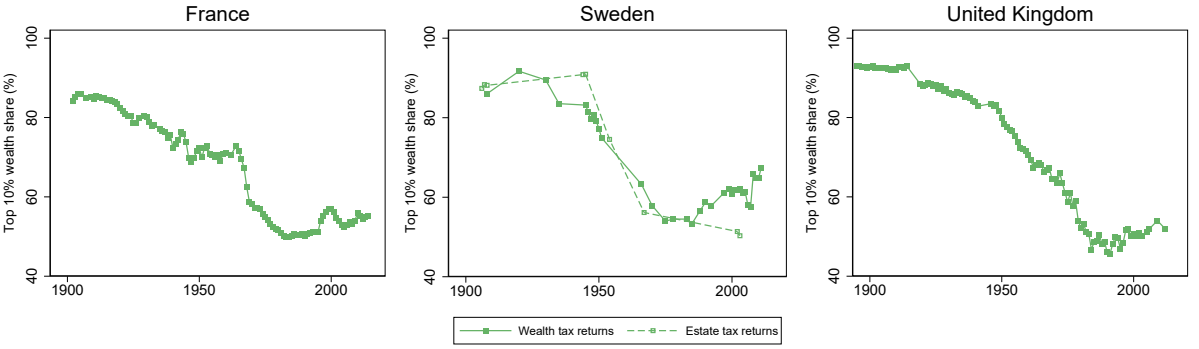
Note: Data on private wealth and national income from Waldenström (2017). Home production of industrial goods is estimated in Edvinsson (2013), using intermediate consumption of raw materials in home crafts by deducting intermediate consumption of raw materials in factories and handicrafts from the total supply of raw materials, calculated from outputs of agriculture, mining, and net imports. The main industries covered in this calculation are textiles and leather, foodstuff, wood and engineering. The value-added across the home industries is added and supplemented to the baseline historical GDP estimates.

Figure A5: Decomposing aggregate wealth-income ratios since 1890



Note: "Housing wealth" is the value of dwellings (buildings and land, AN.111 + AN.2112). "Insurance savings, pensions" is the financial accounts item covering life insurances, pension funds etc. (entire post AFA.6). "Other assets" is the remainder of private net wealth. Sources are WID (www.wid.world) and those in figure 1. Annual levels are observed for all years in Sweden. For housing values (net of estimated mortgages), annual levels are observed all years for the United Kingdom (Madsen, 2019), and for the other countries they are linearly interpolated from estimates of single years in Piketty and Zucman (2014). Funded pensions are for the early periods set equal to the earliest observed value (1970 in France, 1950 in Germany, 1913 in Spain, 1948 in the United Kingdom and 1913 in the United States).

Figure A6: Top 10% wealth share in three countries, 1896-2018



Notes: The series show top decile shares of total private wealth, with some differences in definitions of wealth and populations. Sources: France: Garbinti et al. (2020), Piketty et al. (2006); Sweden: Roine and Waldenström (2009), Lundberg and Waldenström (2018); United Kingdom: Alvaredo et al. (2018).

Table A1: Correlations: Wealth-income ratios, top wealth shares and capital shares

France	W/Y	Wtop1		
Wtop1	0.559***			
CS	0.120	0.057		
Germany	W/Y(PZ)	W/Y(ABS)	Wtop1	
Wtop1	0.826***	0.614		
CS	0.580***	0.310***	0.873***	
Spain	W/Y			
CS	0.106			
Sweden	W/Y	Wtop1		
Wtop1	0.217			
CS	0.577***	0.821***		
United Kingdom	W/Y(PZ)	W/Y(M)	Wtop1	
Wtop1	0.772	0.311		
CS	0.393***	-0.094	-0.008	
United States	W/Y	Wtop1(SZ)	Wtop1(SZZ)	Wtop1(SCF)
Wtop1(SZ)	0.667***			
Wtop1(SZZ)	0.754***			
Wtop1(SCF)	0.732***			
CS	0.511***	0.603***	0.768***	0.803***

Notes: "W/Y" denotes wealth-income ratios, "Wtop1" top percentile wealth share and "CS" capital shares. Wealth-income ratios from figure 1. "(ABS)" is Albers et al. (2021), "(M)" Madsen (2019), "(PZ)" Piketty and Zucman (2014), "(SZ)" Saez and Zucman (2016, 2020), "(SZZ)" Smith et al. (2020), "(SCF)" several papers using SCF data to estimate top wealth shares (see main text). Annual observations of capital shares from Bengtsson and Waldenström (2018). *** denotes significance at the 0.1%-level.

B Extensions

B.1 Extending wealth concentration analysis by including social security wealth and offshore assets

The main analysis in section 3.1 presents the results from extending the standard wealth concept, net marketable wealth, by including two non-standard asset classes: social security wealth, which is mainly unfunded pension assets, and offshore wealth in tax havens both at the aggregate levels and distributional estimates for the countries in the studied sample. In the following, I present the sources and computation approaches used for estimating top percentile shares after the two extensions.

The aggregate wealth-income ratios with and without social security wealth and offshore assets are presented in figure A7. The distributional results are presented in the main analysis, figure 4.

Social security wealth is a term that captures the value of drawing rights on future payments from the social insurance system, which is mainly referring to pensions but in some cases also to other social insurance incomes. Some scholars argue that the entitlements to these future incomes crowd out private saving for old age, sickness and other future needs, and therefore could count as equivalent to private wealth (for example, Feldstein 1974).

The most important component in social security wealth is unfunded pension wealth, which is the same drawing rights applied to unfunded pensions in the public and private systems. In some cases, these unfunded pensions are referred to as defined benefit (DB) pensions, which accrue to the beneficiaries according to a scheme that relates individuals' earnings to future pensions. The other form of pension, which is part of a funded system, is called defined contribution (DC) pensions. Unfunded pensions are assets which are not physically existing on an account and they are therefore not matched by liabilities on the side of policyholders. This lack of balancing items is the main reason for why these unfunded (DB) pensions are not part of the official balance sheets in the national accounts. However, some countries have introduced requirements that some part of unfunded, DB pensions should be backed by guarantee funds which are supposed to safeguard the future potential to pay out pensions. In other words, the exact demarcation between unfunded (DB) and funded pensions (DC) is not always clear, and it can also depend on country-specific contexts. In this study, the definition of unfunded pensions will rely on the conjectures made by different researchers or other sources regarding the nature of different pensions.

Historical aggregate and distributional data are available for two countries in this study's country sample: Sweden and the United States.[25] The exact data used from

[25] Another study of the distribution of unfunded pension assets and its role in wealth inequality is Bönke

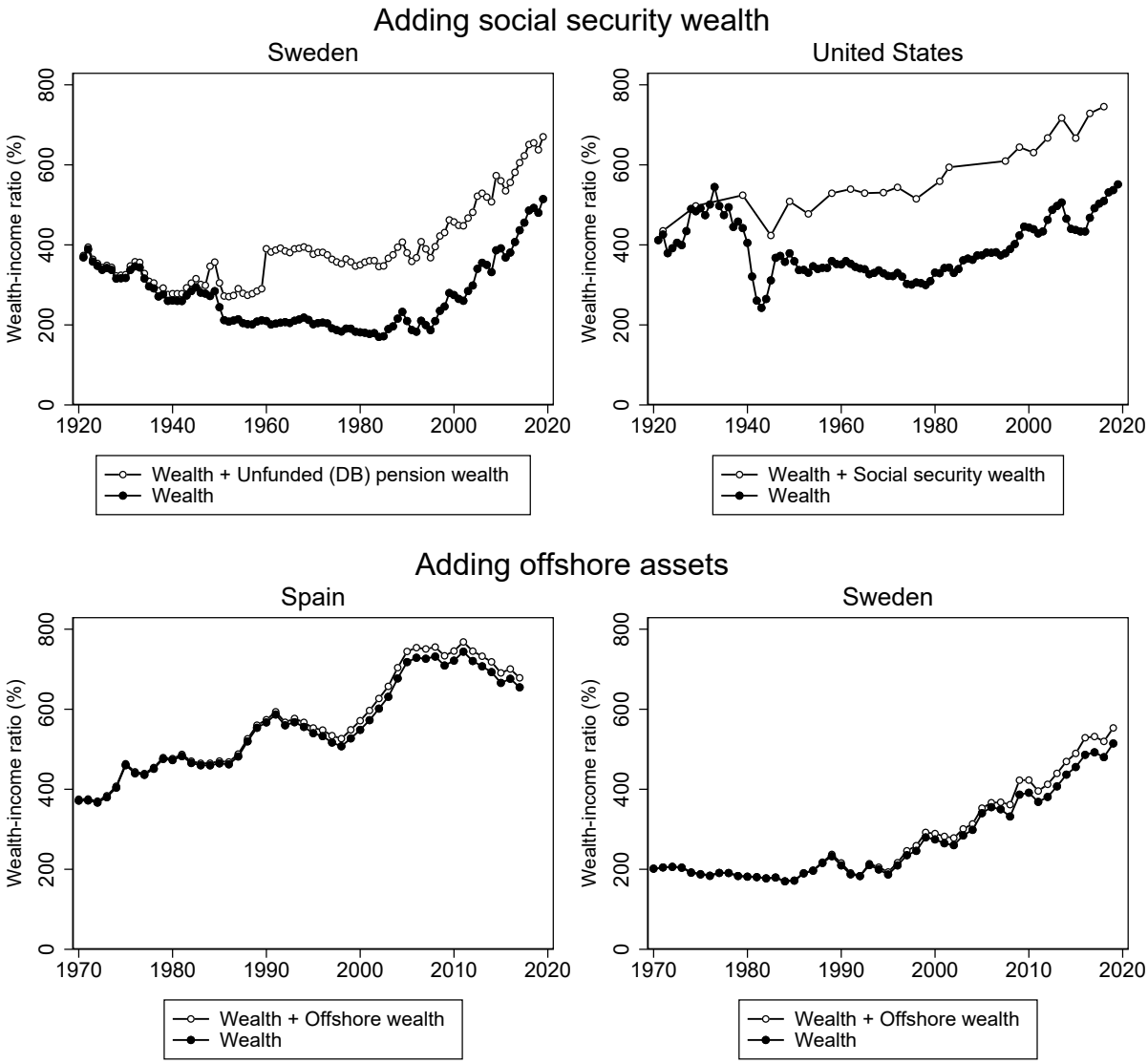
these two countries to compute the value of social security wealth differ somewhat. For Sweden, the data contain information about unfunded pension wealth, which reflects the net present value of unfunded pension entitlements in both the public pension system, which is the largest part, and with private employers. Aggregate values of unfunded pension assets come from Waldenström (2016, 2017). Top wealth shares covering the period 1920-2012 are collected from Roine and Waldenström (2009), which contain estimates of unfunded pension wealth using information from different studies, and Lundberg and Waldenström (2018), which only contains top marketable wealth shares. In order to get top wealth shares that incorporate unfunded pension wealth for all years, I combine the estimates in Roine and Waldenström (2009) and allocated the unfunded pension wealth to top and bottom wealth holders as described below.

Data on social security wealth in the United States come from different sources. These contain not only old-age pensions, but also disability insurance and some other social security transfers. Aggregate values are collected from Wolff and Marley (1989) and Wolff (2011), which cover single years in the period since 1922, and Sabelhaus and Henriques Volz (2020), which covers the period since 1995. Notice that Catherine et al. (2021) make similar computations as Sabelhaus and Henriques Volz (2020), but use different assumptions about discount rates when valuing social security wealth. This generates higher values in recent years, importantly, a flatter overall wealth concentration trend. Saez and Zucman (2016, 2020) do not analyze unfunded pension wealth or social security wealth, and the series of these outcomes that they present in their appendix deviates from those presented by other authors.

Offshore wealth located in other jurisdictions, often so-called tax havens, is difficult to estimate. There are a number of attempts to calculate the aggregate value of offshore wealth holdings of residents in rich countries. These estimations use a wide array of sources, including cross-checked national balance sheets, accumulated balance of payments residuals, Swiss central bank records and listings of individual account holders in leaked documents (Alstadsæter, Johannessen and Zucman 2019, Roine and Waldenström 2009, Martínez-Toledano 2020). To shed light on the distributional impact of these offshore assets in the Western world, I have located estimates of both aggregate offshore assets and top percentile wealth shares with and without offshore assets for Spain (Artola Blanco et al. 2020; Martínez-Toledano 2020) and for Sweden (Waldenström 2017; Roine and Waldenström 2009; Lundberg and Waldenström (2018)). The Spanish series are based on calculations from data in the Swiss National Bank and asset composition evidence in Spanish wealth survey data. The Swedish series are based on cumulated net errors and emissions in the Balance of Payments, which are assumed to correlate with tax-driven capital flows. Note that although these estimates are based on systematic analysis, they are highly uncertain.

et al. (2019), which compares Germany and the United States for a single year in the 2000s

Figure A7: Aggregate wealth-income ratios after adding social security wealth and offshore assets



Note: Sources for social security wealth: Swedish data from Waldenström (2016, 2017) and United States data from Piketty and Zucman (2014), Wolff and Marley (1989) and Sabelhaus and Henriques Volz (2020). Sources for hidden wealth: Spanish data from Artola Blanco et al. (2020) and Swedish data from Waldenström (2016, 2017).

The basic approach to calculate top wealth shares that include social security wealth and offshore wealth is to combine distributional estimates for marketable wealth and a part of the aggregate value. These are the added to compute the wealth of the top percentile, ranked according to net marketable wealth, and the bottom 99 percentiles. Denoting the top 1% wealth W_{top1}, social security wealth A^{SSW}, the top 1% wealth share is $ShW_{top1} = W_{top1}/W$, and top corresponding top percentile share for wealth including social security wealth is $ShW^{SSW}_{top1} = W^{SSW}_{top1}/W^{SSW} = (W_{top1} + A^{SSW}_{top1})/(W + A^{SSW})$. and including offshore assets it is $ShW^{Off}_{top1} = W^{Off}_{top1}/W^{Off} = (W_{top1} + A^{Off}_{top1})/(W + A^{Off})$. This shows that the estimation of A^{SSW}_{top1} and A^{Off}_{top1} will be key for this analysis.

B.2 Capital-income vs. wealth-income ratios

A recurrent question in the historical wealth literature is whether the concepts of wealth W and capital K can be used interchangeably and if the wealth-national income ratio W/Y matches the more commonly studied capital-gross domestic output ratio K/Y_d.[26]. So far, this discussion has mainly been conceptual, but in this section, I use a dataset on historical capital-output ratios presented in Madsen et al. (2021) to analyze it empirically.[27] Even though this comparison is not without flaws, it offers an opportunity to make out-of-sample checks of the historical wealth-income ratios presented above.

The capital stock K usually refers to fixed domestic capital and is commonly measured as the sum of accumulated investments in fixed capital assets (buildings, infrastructure, machinery, R&D) net of an assumed depreciation rate (the perpetual inventory method). For this measurement to work properly, it is key that the historical investment series are representative and comparable over time. The wealth stock W is a broader measure that includes both produced and non-produced assets, such as land, and also financial assets and net foreign assets, NFA. Comparing wealth and capital empirically is difficult. Piketty and Zucman (2014) expresses the relationship as $W = K + NFA$, reflecting that both financial assets and land can be adhered to the productive capital stock once net foreign assets are lifted out.[28] The market valuation of assets is a particular issue which differs somewhat across wealth and capital. Both concepts are based on market values, but the capital stock captures these as they appear in the value of investments whereas the wealth stock instead captures them as they realize in current market prices of the existing stock of assets. This discrepancy is well-known and it usually grows in periods with abnormal asset price movements. Housing HOU is sometimes excluded from empirical measures of K, as in the case of Madsen et al. (2021), which excludes investments in housing constructions. Accounting for housing, the relationship becomes $W = K + NFA + HOU$, which implies that $K = W - NFA - HOU$. I used observed and estimated values of NFA and HOU (though this includes also land values) to solve for K in all studied countries.[29]

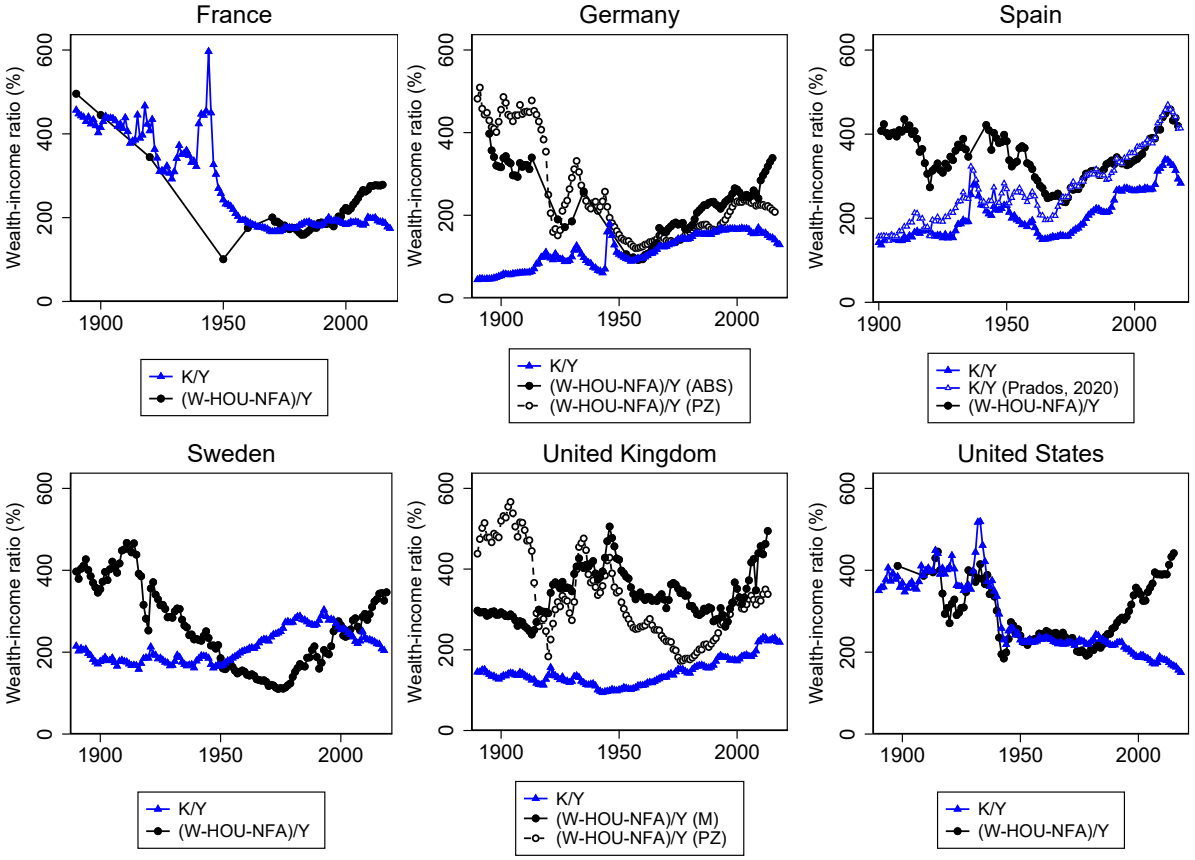
[26] See, for example, Piketty 2014, Weil 2015 and Blume and Durlauf 2015

[27] A new, still unpublished, paper, (Prados de la Escosura 2022), calculates a capital-output ratio for Spain since the mid-nineteenth century that has the same low level in the nineteenth century as Madsen et al. (2021) but increases more rapidly in the twentieth and twenty-first centuries.

[28] Wealth W could in principle be either national or private net wealth, the difference being government wealth, and this could matter for the allocation of NFA (concerning, for example, external sovereign debt). However, due to a general lack of data on private and government shares of total NFA, this aspect will be disregarded in the analysis and all NFA will thus be interpreted as held by the private sector.

[29] Madsen et al. (2021) uses GDP Y^d instead of national income Y as income denominator, and to get ratios with national income as denominator, I divide their K/Y_d series by the ratio of national income to GDP, Y/Y_d, using annual data for Sweden from the nineteenth century until 2019. This ratio goes from 0.95 to 0.85 over the period. I use the Swedish series for convenience, since it is almost the same as for the other countries (Piketty and Zucman 2014) and their series are not available annually over the entire period.

Figure A8: Capital-output ratios and wealth-income ratios in history



Note: "K/Y" denotes capital-income ratios from Madsen et al. (2021). "W-NFA-HOU/Y" denotes wealth net of net foregin assets and housing divided by national income, with "(PZ)" referring to Piketty and Zucman (2014), "(ABS)" to Albers et al. (2021), and "(M)" to Madsen (2019) (see figure 1 for sources).

Figure A8 compares the ratios of "private wealth net of NFA and housing" and capital to national income in all the six countries studied above. In the pre-World War I period, the capital-income ratio is markedly lower than the wealth-income ratio in Germany, Spain, Sweden and the United Kingdom but they are at the same level in France and the United States. Later in the twentieth century, the differences are relatively small in all countries and the two ratios also follow almost parallel trends up to the 1990s. In the recent decades, the wealth-income ratio has increased markedly in all countries, but the capital-income ratio has instead remained stable or even decreased somewhat. This recent divergence most likely stems from the rapid asset prices increases recorded around the Western world that boost the wealth stock but leave the capital stock largely unaffected as it relies on cumulative investments rather than current market prices. This role for asset price variations is supported by decompositions of the post-1980 wealth accumulation made in the studies presenting the wealth-income ratios.

Overall, the historical patterns in wealth-income ratios and capital-income ratios in figure A8 give a fairly scattered picture as regards their overlaps and temporal correlation. In two countries, France and the United States, the two ratios are close to each

other, at least up to the 1980s. By contrast, in the four other countries, the two ratios diverge quite notably both in level and in time series behavior. The much lower capital than wealth values in pre-World War I Europe stands out and warrants further investigation. In a few cases, especially the extremely low capital values in Germany and to some extent also in the United Kingdom, an important part of the explanation is implausibly low capital-income ratios. However, for the other countries, it could as well be that wealth values are overestimated, perhaps due to misdirected extrapolations of unrepresentative market prices recorded from scattered historical sources.