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## Long-Run Changes in the Concentration of Wealth: An Overview of Recent Findings

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### 1 Introduction

In this chapter we review the latest findings on historical wealth concentration in a number of Western countries. We also present new series for Scandinavia, and, finally, we compare these developments over time. The aim is to distinguish between common trends and changes that are more likely to be country specific. In particular, we revisit the question of whether wealth inequality increased in the initial phase of industrialization and to what extent later stages of development saw a reversal of such a trend. Ultimately the goal is to present new insights about the dynamics of wealth distribution over the development path. This, in turn, may have implications for countries currently in early stages of development.<sup>1</sup>

We are grateful to Tony Atkinson, James Davis, Markus Jäntti, Jean-Laurent Rosenthal, and conference participants at the UNU-WIDER project meeting 'Personal Assets from a Global Perspective', Helsinki, 4–6 May 2006, for comments. Lennart Berg and Mats Johansson have generously provided some of the Swedish data.

<sup>1</sup> There is a large theoretical literature on the interplay between wealth distribution and development that emphasizes wealth distribution as a determinant of individual possibilities to pursue different occupations, especially in the presence of credit constraints, when assets are essential as collateral or as a means of directly financing entrepreneurial undertakings. This literature does not, however, give a uniform message about the dynamics of wealth distribution over development. Indeed, recent models can be classified according to their predictions about how markets affect the distribution of wealth in the long-run (see, e.g., Mookherjee and Ray 2006). Some promote an equalization view, in which the intergenerational transmission of wealth causes convergence (e.g., Becker and Tomes 1979; Loury 1981). Stiglitz (1969) also showed long-run equalization to be the predicted outcome under quite general assumptions in a standard neoclassical framework. Others take the completely opposite view that markets in the long run increase wealth inequality (e.g., Ljungqvist 1993; Mookherjee and Ray 2003). In between these extremes we find models that permit both initial inequalities and initial equalities

We believe that there are several reasons why it is interesting to study the evolution of wealth concentration in Scandinavia compared to other countries. First, compared to most countries for which data on wealth concentration exist, the Scandinavian countries were late to industrialize. This, combined with the fact that we have data stretching as far back as around 1800, means that we can follow wealth concentration over the whole transition from before industrialization up to now.<sup>2</sup> A second reason for comparing Scandinavia to other Western countries is that the Scandinavian countries are well known to be extremes in the spectrum of welfare states, and their achievements in terms of equalizing income and wealth are renowned.<sup>3</sup> However, it is not equally established how much of the equalization took part before the welfare-state expansion, and, in particular, it is not clear why it happened.<sup>4</sup> Finally, a common theme stressed in several recent studies is that a number of exogenous shocks to wealth holdings during the first half of the twentieth century are the main explanation to the dramatic declines in top wealth shares. As Sweden did not take part in the world wars and was less affected by the Great Depression compared to many other countries, the development of wealth concentration over these periods is interesting. If Swedish wealth concentration falls at the same time as in other countries, then different mechanisms must be at work, which would not be the case if Sweden (and other countries not involved in the wars) showed no decline in wealth inequality.

We will focus on the most recent studies for France (Piketty et al. 2006), Switzerland (Dell et al. 2007), and the USA (Kopczuk and Saez 2004b), but we also include UK data from Lindert (1986, 2000) for the nineteenth century, UK data from Atkinson and Harrison (1978) and Atkinson et al. (1989) for the twentieth century, and US wealth distribution data from Lindert (2000). Our hope is that by focusing on these recent studies we can update the parts of the picture given by Davies and Shorrocks (2000).<sup>5</sup> For Scandinavia we rely on new

to persist. Typically, history determines where a society ends up in the long-run view (Banerjee and Newman 1993; Galor and Zeira 1993; Aghion and Bolton 1997; Piketty 1997; Matsuyama 2000; Ghatak and Jiang 2002). Data on wealth distribution over the transition from agrarian to industrial society are therefore also important to evaluate the various theoretical predictions.

<sup>2</sup> The first observation for Sweden is 1800, and for Denmark and Norway 1789. These early estimates are due the pioneering work by Soltow (1980, 1981, 1985). In terms of new data, our earliest observations are 1868 for Norway, 1873 for Sweden, and 1908 for Denmark.

<sup>3</sup> See, e.g., Esping-Andersen's famous categorization (1990) of different types of welfare states.

<sup>4</sup> Spånt (1978) studies Sweden during the period 1920–75 and establishes that wealth shares did fall substantially before the welfare state expansion. We provide new data for earlier periods and more details for the period 1920–75, allowing us to draw new conclusions about when the major changes took place.

<sup>5</sup> In a way, these recent studies can be seen as a renewed interest in the long-run development wealth concentration, despite the obvious shortcomings of early data. As noted by Davies and Shorrocks (2000), the emphasis in the past decades had been shifting away from general distributional characteristics to causes of individual differences in wealth holdings. Such questions require micro-data, typically not found before the 1960s, and, therefore, much

data based on wealth tax statistics as well as some new estate tax data. For the case of Sweden, using new data allows us to construct comparable series from 1908 until today, while for Denmark and Norway we compile data from a number of previous publications trying to link comparable estimates. These series are the result of our first analysis of the new Scandinavian data and our future work may contain adjusted estimates.<sup>6</sup>

## 2 Recent Country Studies

### 2.1 *Some Measurement Issues*

The main conceptual and measurement issues relevant when studying the historical development of wealth inequality relate to how wealth and wealth holders are defined in the different sources and to how this affects the calculation of wealth concentration. More elaborate discussions can be found in, for example, Davies and Shorrocks (2000) and Atkinson (Chapter 4, this volume).

The wealth definition in historical sources is usually *net wealth* (also called net worth or net marketable wealth), defined as the sum of real and financial assets less debts. This is the most common concept appearing in the historical tax-based sources (that is, wealth and estate taxes) and the main concept used throughout this chapter. For the post-war years, however, *augmented wealth*, defined as net wealth and pension wealth (contributions into pension schemes and future social-security payments), has been proposed as an alternative.

Wealth and estate taxation provide the most common sources of historical wealth data. These fiscal instruments have been levied for centuries, and the authorities have often been interested not only in collecting the revenues but also in calculating the sizes of the tax bases. In the present study, the series from France, the UK, and the USA are based on the estate tax, specifically on samples of individual estate tax returns.<sup>7</sup> The wealth data from Denmark, Norway, and Switzerland are based on wealth taxes, in most cases as tabulated distributions published by each country's tax authorities. For Sweden we have data based both on wealth and on estate taxes.

of the long-term perspective had, until recently, been considered, if not less important, then impossible to study owing to the lack of data. New research, following Piketty (2001), Piketty and Saez (2003), and Atkinson (2004), focusing first on income but then also on wealth distribution (some of which we review here), has lately changed this. See Atkinson and Piketty (2007) for more on this research agenda.

<sup>6</sup> More complete details on the sources as well as some additional tables can be found in the working paper version of this chapter and the data appendix therein (Ohlsson et al. 2006).

<sup>7</sup> These are generally adjusted to reflect the distribution of the living population by use of inverse mortality rates for age, sex, and social-status classes; see Atkinson and Harrison (1978: ch. 3) for a thorough description of the estate multiplier method.

Tax-based statistics have some well-known problems, the most obvious relating to tax evasion and avoidance. Whether such activities lead to errors in estimated wealth shares is, however, not clear. If non-compliance and tax planning are equally prevalent in all parts of the distribution—they may, of course, take very different forms—this affects the reported wealth levels but not the shares. The same goes for comparisons over time and across countries. Unfortunately there is little systematic evidence on this. Overviews, such as Andreoni et al. (1998), and Slemrod and Yitzhaki (2002) (which are mainly concerned with personal income taxes) suggest that, while avoidance and evasion activities are important in size, there are no clear results on the incidence of overall opportunities nor on these activities becoming more or less important over time.<sup>8</sup> Furthermore it is not clear whether to expect more or less avoidance and evasion in countries with higher tax rates. While incentives to engage in avoidance and evasion clearly increase with taxes, so do the incentives for tax authorities to improve their information.<sup>9</sup> Concerning wealth and estate taxes, it seems plausible to think that estate tax data are more reliable since it is typically in the interest of the heirs formally to establish correct valuations of the estate.<sup>10</sup> At the same time, tax planning aimed at avoiding the estate tax is an important industry in the USA and elsewhere. This may affect the reliability of the data. For wealth tax data, problems of under-reporting are likely to be similar to those for income data, with items that are double reported being well captured while other items are more difficult. Finally, the use of tax shelters may be a problem. Given the large fixed costs related to advanced tax planning, it is likely that such activities are limited to the very top of the distribution. If this has become more important over the past decades—something that seems likely—then estimates of wealth concentration for recent periods may understate wealth holdings in the very top and not be directly comparable with estimates produced earlier; in particular top wealth shares may be underestimated for recent decades.<sup>11</sup>

<sup>8</sup> For example, Gordon and Slemrod (1988: 89–130) and Agell and Persson (1990) argue that tax arbitrage opportunities generally benefit those at the bottom and the top of the tax rate distribution (typically correspondingly low- and high-income earners) to the disadvantage of those in the middle. Tax evasion (in developed countries) seems to be a relatively minor problem when it comes to income from wages and salaries, and capital income from dividend and interest, but more of a problem for self-employment income and informal small business income (e.g., Slemrod and Yitzhaki 2002), but, again, it is not clear that these activities on aggregate are unevenly spread across the distribution.

<sup>9</sup> Friedman et al. (2000) provide evidence supporting the idea that higher taxes also leads to better administration across a broad sample of countries as they find that higher taxes are associated with less unofficial activity.

<sup>10</sup> For 2001, the most recent for which the IRS has final figures, the tax gap in the USA (i.e. the difference between taxes owed and taxes paid) was around 16%. Out of the \$US345 billion that make up the tax gap, only about \$US4 billion were associated with estate and excise taxes.

<sup>11</sup> Dell et al. (2007) find that the number of wealthy foreigners living in Switzerland has increased sharply since the 1950s. However, they also find that the amounts earned in Switzerland from all non-residents is very small relative to the amounts reported by high incomes in the

Even if there are problems with tax statistics, emphasizing the need for caution especially when comparing long series across countries, there are some positive aspects as well. First, tax statistics are often available for long time periods. They are also typically quite comprehensive in their coverage, which would imply smaller sampling errors. The fact that tax-based data stem from an administrative process that is part of enforcing the tax legislation means that declining to respond is typically not an option. This means that the ‘response rate’ in tax-based data is likely to be higher than in survey data.<sup>12</sup>

The definition of wealth holders in the tax statistics—that is, the tax units—differs across the wealth and estate taxes and, therefore, also across the countries studied here. The wealth tax (in Sweden, Denmark, and Switzerland) uses variants of the *household* as tax unit. This, in principle refers to families (that is, married couples and their under-aged children living under the same roof) and single adults who then make up the relevant tax population.<sup>13</sup> The estate tax data (in France, the UK, and the USA) are based on (deceased) *individuals* and hence the tax population consists of all adults.<sup>14</sup> The tax unit definition actually matters for the distributional estimates, as shown by Atkinson and Leigh (2005). Unless husbands and wives have equal wealth, individual-based data tend to (but must not) give rise to a more unequal wealth distribution than do the household-based data. The wealth-holder concept also matters when wealth inequality trends are studied over very long time periods—for example, from periods when a significant share of the population was represented by slaves, unfree women, or improperly registered immigrants. Shammass (1993) shows that the US historical wealth concentration is different depending on how one chooses to include these different subgroups in the reference tax population. Our aim has been to use whichever historical estimate generates the highest degree of consistency over time for all countries.

USA (less than 10% of all incomes earned by the top 0.01% income earners in the USA). But, as they also note, there are other tax havens, and, especially for relatively small open economies such as the Scandinavian countries, wealth held abroad may have an important impact on top wealth shares. Roine and Waldenström (2007) show that the share of the top wealth percentile in Sweden increases substantially if one adds the amounts of estimated household wealth placed abroad using capital flow data in the balance of payments statistics.

<sup>12</sup> Johansson and Klevmarcken (2007) compare survey and register wealth data and find that there is no general tendency of survey data to underestimate mean wealth with the exception of the last percentile. This underestimate is, however, due not to under-reporting but rather to selective nonresponse.

<sup>13</sup> It should be noted that households and families are not fully equivalent, e.g., in the, often historical, cases when households also include servants and other non-related persons. We disregard these distinctions for practical reasons and treat family- and household- based tax systems as essentially identical.

<sup>14</sup> An additional problem is that the age cut-off may vary across countries and even within countries over time, which could introduce measurement errors and problems of comparability.

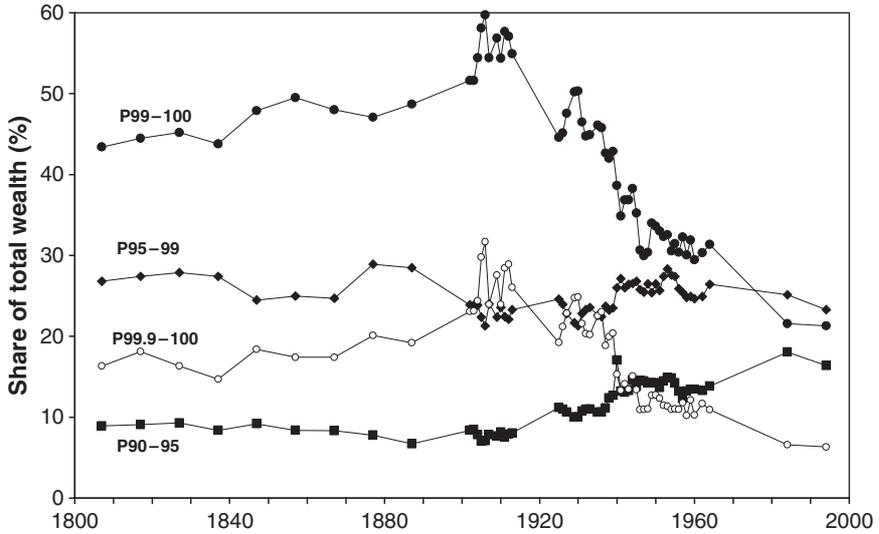
## 2.2 France

The long-run evolution of French wealth inequality is particularly interesting to study given France's important role for Europe's economic and political development. Recently Piketty et al. (2006) presented new data on wealth concentration for Paris and France over almost 200 years, from the Napoleonic era up to today. No previous study on any country has produced such a long homogeneous time series offering a complete coverage of the effects of industrialization on wealth inequality. The French wealth data come from estate sizes collected in relation to an estate tax that was established in 1791 and maintained for more than two centuries. For every tenth year during 1807–1902, the authors manually collected all estate tax returns recorded in the city of Paris—Paris was chosen both for practical reasons but also because it hosted a disproportionately large share of the wealthy in France. Based on summary statistics on the national level for the estate tax returns, the top Paris wealth shares were 'extrapolated' to the national level. For the post-1902 period, tabulated estate size distributions published by French tax authorities were used.

Figure 3.1 shows the evolution of the wealth shares for some fractiles within the top wealth decile in Paris (1807–1902) and France (1947–94). The estimates are from the population of deceased—that is, directly from the estate tax returns—but comparisons with the equivalent wealth shares for the distribution of the living population (computed using estate multipliers) reveal practically identical trends and levels.<sup>15</sup> The figure shows that wealth concentration increased significantly for the top 1 and 0.1 percentiles over the nineteenth century, first slowly up to the 1870s then more quickly, until a peak at the eve of the First World War. By contrast, the two lower groups in the top decile are much less volatile during the period. The bottom 5 per cent (P90–95) held about 9 per cent of total wealth until the First World War, when its share started to increase slowly until it had doubled by the 1980s. The next 4 per cent (P95–99) stayed put on a level around 27 per cent of total wealth throughout the period. These patterns suggest that the French industrialization, which took off around mid-century, greatly affected personal wealth. It was already doing so after a couple of decades, but only in the absolute top group. This conclusion is further supported by two other observations. First, the composition of top wealth went from being dominated by real-estate assets (mainly land and palaces) in the first half of the century to being dominated by financial assets (cash, stocks, and bonds), which were supposedly held by successful industrialists and their financiers. Second, over the same period the share of aristocrats among top wealth holders decreased from about 40

AQ1

<sup>15</sup> From data in Piketty et al. (2006: tables A2 and A4) over top wealth shares for both the dead and living populations in Paris and France, it is evident that the trends in wealth shares over time are practically the same for all fractiles and even the levels do not differ much, on average 0.4% for the top decile and 5.1% for the top percentile.



**Figure 3.1.** Top wealth shares among the deceased, France, 1800–2000

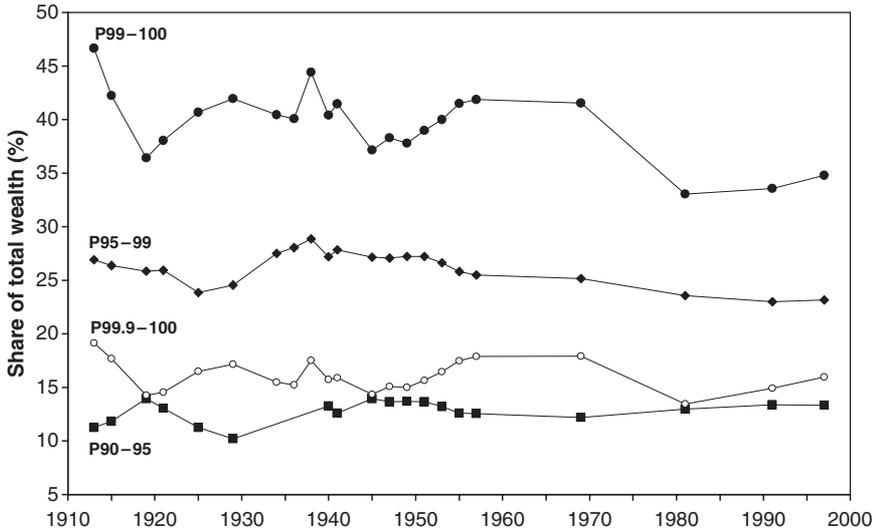
Source: Piketty et al. (2004: tables A3 and A7).

per cent to about 10 per cent.<sup>16</sup> From the First World War to the end of the Second World War, top wealth shares declined sharply, which, according to Piketty (2003), is directly linked to the shocks to top capital holdings that inflation, bankruptcies, and destructions meant. The post-war era was quieter with regard to changes in the wealth concentration, although its decline continued, probably in relation to the increase of progressive taxation (Piketty et al. 2006).

### 2.3 Switzerland

Switzerland is an interesting point of reference to any cross-country analysis of industrialized countries because of its specific institutional setting, with little central government interference and low overall taxation levels. Moreover, Switzerland did not take part in the world wars. Data on the Swiss wealth concentration are based on wealth tax returns compiled by tax authorities for disparate years between 1913 and 1997 (Dell et al. 2007). The Swiss wealth tax was levied on a highly irregular basis and the authors have spliced several different point estimates from local as well as federal estimates to get a fairly continuous series for the whole country.

<sup>16</sup> These facts are shown in Piketty et al. (2006: figures 4–6).



**Figure 3.2.** Top wealth shares, Switzerland, 1913–1997

Source: Dell et al. (2005: table 3).

Figure 3.2 depicts top wealth shares within the Swiss top wealth decile over the twentieth century. In stark contrast to the other countries surveyed in this study, wealth concentration in Switzerland appears to have been basically constant throughout the period. The wealth shares at the top of the distribution have decreased but the movements are small compared to all other countries studied.<sup>17</sup> This refers not only to the top decile vis-à-vis the rest of the population, but perhaps most strikingly also to the concentration of wealth within the top decile. The highest percentile and the top 0.1 percentile have not gained or lost considerably compared the bottom 9 per cent of the top decile, except for some short-run fluctuations. It is not obvious how to account for this long-term stability in terms of the country's relatively low level of wealth taxation, nor can the fact that Switzerland stayed out of both the world wars alone account for this, as Sweden, which also escaped both world wars, does not share the Swiss pattern of development of the wealth distribution. In any case, the Swiss top wealth share series seriously questions the hypothesis that significant economic development always leads to a lower level of wealth inequality over time either for reasons of redistribution or simply because of the relatively quicker accumulation of household wealth among the middle class.

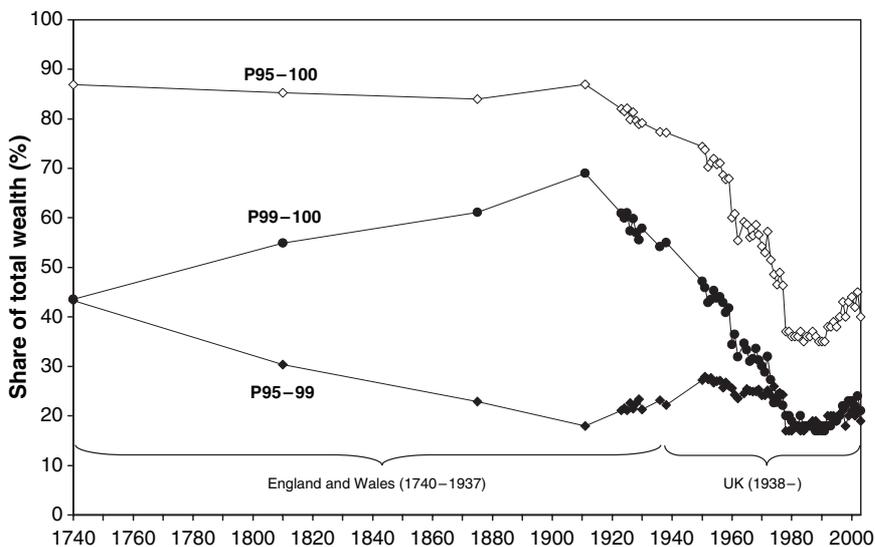
AQ2

<sup>17</sup> A simple trend regression yields small but significant negative coefficients.

## 2.4 The United Kingdom

The historical data on UK wealth concentration are available from before the country's industrialization. Prior to the twentieth century, however, data have to be collected from scattered samples of probate records and occasional tax assessments (see Lindert 1986, 2000). It was not until the Inland Revenue Statistics started publishing compilations of estate tax returns after the First World War that the series are fully reliable (see Atkinson and Harrison 1978; Atkinson et al. 1989).<sup>18</sup> It should be noted that the geographical unit of analysis changes over time, with pre-Second World War numbers almost always being England and Wales while the post-war ones reflect all of the UK. Data in Atkinson et al. (1989: table 1) show, however, that the differences between these entities are fairly small.

When England industrialized in the second half of the eighteenth century, the build-up of personal wealth also changed. From the the overall wealth concentration shown in Figure 3.3 it is evident that there is great heterogeneity within the top 5 per cent of the distribution.<sup>19</sup> Apparently, wealth



**Figure 3.3.** Top wealth shares, UK (and England and Wales), 1740–2003

Source: See Ohlsson et al. (2006: data appendix).

<sup>18</sup> Some sources of variation remain, however, such as the fact that for 1911–13 estate multipliers were based only on age, whereas from 1923 onwards they were based on both age and gender.

<sup>19</sup> The reader should keep in mind that this figure, and several others in this study, contains spliced series coming from different sources, which naturally may impede the degree of homogeneity over time.

concentration at the very top increased, while, by contrast, the wealth share of the next 4 per cent saw its wealth share decline during the same period. Using supplementary evidence on personal wealth, Lindert (1986, 2000) shows that wealth gaps were indeed increasing in the absolute top during the nineteenth century, with large landlords and merchants on the winning side. At the same time, Lindert points out that the middle class (that is, those between the 60th and 95th wealth percentiles) were also building up a stock of personal wealth, and this is probably what is causing the drop in the share of the next 4 per cent shown in Figure 3.3. AQ3

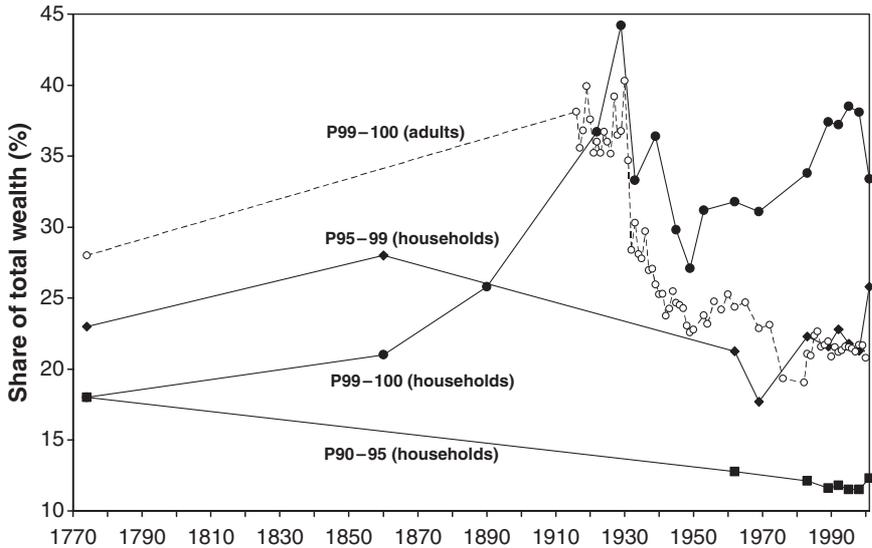
After the First World War, the pattern was the reversed. While the top percentile wealth share dropped dramatically from almost 70 per cent of total wealth in 1913 to less than 20 per cent in 1980, the share of the next four percentiles remained stable and even gained relative to the rest of the population. Atkinson et al. (1989) argue that this development was driven by several factors, but that the evolution of share prices and the ratio of consumer durables and owner-occupied housing (that is, popular wealth) to the value of other wealth were the most important ones. According to the most recent statistics from the Inland Revenue, the top 1 per cent wealth share increased by about one-third between 1990 and 2003, but this increase has not yet been explained by researchers. Possibly, it reflects the surge in share prices following the financial market deregulation of the 1980s (the ‘big bang’), as financial wealth is most concentrated at the absolute top of the wealth distribution.<sup>20</sup>

## 2.5 *The United States*

The historical development of US wealth concentration has been extensively studied by economists and historians. Inequality estimates are available back to the time of the American Revolution. In this study, we combine pieces of evidence to create long (fairly) homogenous series of wealth inequality for the USA. There are several problems with the final series concerning consistency and comparability over time (for reasons discussed in Section 3.1). For the twentieth century we compare complementary series based on different sources and definitions of wealth to get an idea of how large these problems may be.

In Figure 3.4, the evolution of the US top wealth decile is shown over the period 1774–2001, with the top percentile drawn from two different distributions: adults and households. Specifically, the top wealth shares for adults in 1774 come from Shammass (1993), who in turn adjusted earlier estimates of Alice Hanson Jones by adding unfree men and women to the reference total population, and for the years 1916–2000 from Kopczuk and Saez (2004b), who AQ4

<sup>20</sup> This is a stylized fact that is true for many developed countries (see, e.g., the overview of ‘stylized facts’ in Davies and Shorrocks 2000).



**Figure 3.4.** Top wealth shares, adult and household populations, USA, 1774–2001

Source: See Ohlsson et al. (2006: data appendix).

use federal estate tax returns. For the household distribution, data come from Shammass (1993), Lindert (2000) and various twentieth-century estimates by E. N. Wolff (1987, 2006).<sup>21</sup> The two top percentile series seem inversely U-shaped over the period, with wealth shares increasing slowly between the late eighteenth and the mid-nineteenth centuries but then much faster between 1860 and 1929, when they more than doubled. The long-run pattern of the lower 9 per cent of the top wealth decile, however, exhibits stable or even decreasing shares of total wealth (although based on rather few observations). This inequality increase in the absolute top coincides with the industrialization era in the USA around the mid-nineteenth century. Although the few pre-First World War estimates are uncertain, their basic message is supported by researchers using other sources. For example, Rosenbloom and Stutes (2005) also find in their cross-sectional individual analysis of the 1870 census that regions with a relatively high share of its workforce in manufacturing had relatively more unequal wealth distributions (see also Moehling and Steckel 2001). Another anecdotal piece of evidence in support of a linkage between industrialization and increased inequality is that the fifteen richest Americans in 1915 were industrialists from the oil, steel, and railroad industries and their financiers from the financial sector.<sup>22</sup>

<sup>21</sup> While the pre-Second World War data are drawn mainly from censuses, the post-1962 observations from E. N. Wolff (1987, 2006) are based on survey material.

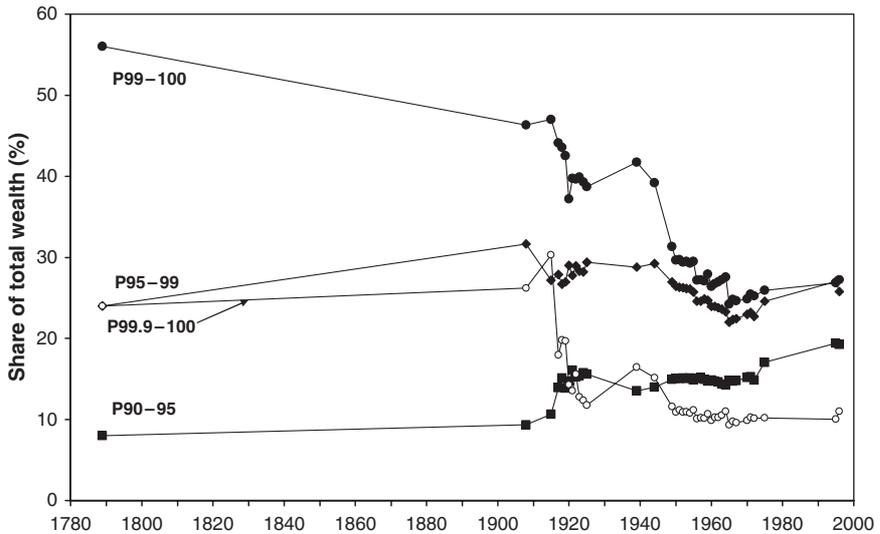
<sup>22</sup> See the listing of the top 20 fortunes in 1915 by De Long (1996).

The twentieth-century development in Figure 3.4 suggests that wealth concentration peaked just before the Great Depression in 1929–30, when the financial holdings of the rich were highly valued on the markets. In the depression years, however, top wealth shares plummeted as stocks lost almost two-thirds of their real values. Kopczuk and Saez (2004b) show that corporate equity represented more than half of the net wealth of the top 0.1 percentile wealth holders in 1929. Another contributing factor to wealth compression was surely the redistributive policies in the New Deal. After the Second World War, the top percentile wealth shares remained low until the 1980s, when the top household percentile's share increased significantly, peaking around mid-late 1990s and then declined somewhat in 2001 (E. N. Wolff 2006). By contrast, the top adult percentile wealth share from the estate series in Kopczuk and Saez (2004b) exhibits no such increase, which is surprising given that this period also saw a well-documented surge in US top incomes (Piketty and Saez 2003). Whether the difference in trends between the household and adult distributions reflects inconsistencies in the data or some deeper dissimilarity in the relation between income and wealth accumulation remains to be examined by future research.

## 2.6 Denmark

For Denmark, there exist historical estimates of wealth concentration from as early as 1789 and then more frequently from the beginning of the twentieth century onwards. The comparability of these observations is not perfect and the composite series must thus be interpreted cautiously. Nevertheless, this study is the first to present a full range of wealth-inequality estimates from the periods before, during, and after the industrialization of Denmark that took place in the late nineteenth century. The earliest data for Danish wealth concentration come from a comprehensive national wealth-tax assessment in 1789, from which Soltow (1981) has collected a large individual sample of the gross wealth of households. After this year, however, there is a gap in the data until the early twentieth century, when the modern wealth tax had been introduced. For 1908–25, Zeuthen (1928) lists tabulated wealth distributions (number of households and their wealth sums in different wealth size classes) for Danish households, adjusted so as to include also those households with no taxable wealth. Similar tabulated wealth-tax-based data are published in Bjerke (1956) for 1939, 1944, and 1949 and in various official statistical publications of Statistics Denmark for a few years thereafter until the wealth tax was abolished in 1997.<sup>23</sup>

<sup>23</sup> The estimates in 1995 and 1996 were constructed from only the tabulated number of wealth holders (families) and the total net wealth in the whole country. Supplementary Danish top wealth shares exist for the 1980s in Bentzen and Schmidt-Sørensen (1994), but unfortunately wealth size has been top-coded in their data and the resulting estimates are not fully comparable with the other tax-based data.



**Figure 3.5.** Top wealth shares, Denmark, 1789–1996

Source: See Ohlsson et al. (2006: data appendix).

Figure 3.5 shows the wealth shares of groups within the top decile between 1789 and 1996. The lowest 5 per cent (P90–95) exhibits a flat trend up to 1908 and thereafter doubles its share from 10 to 20 per cent over the twentieth century. The next 4 per cent (P95–99) lies constant between 25 and 30 per cent of total wealth over the entire period, whereas the top percentile (P99–100) decreases significantly over the period, with particularly marked decreases after the two world wars. At the very top of the distribution, the top 0.1 percentile (P99.9–100), there is no decrease at all up to 1915, but instead there is a dramatic drop by almost two-thirds of the wealth share between 1915 and 1925. Overall, the Danish wealth concentration decreased over the course of industrialization, and this continued throughout the twentieth century, although the development was not uniform at all times and across all groups. AQ5

Explaining the wealth compression of the Danish industrialization can be done by comparing the identities of the Danish top wealth holders before and after the late nineteenth century. In 1789, the dominant groups in the top of the wealth distribution were owners of large agricultural estates. Soltow (1981: 126) cites a historical source, saying that ‘some 300 Danish landlords owned about 90 per cent of the Danish soil’. By contrast, in 1925 the group with the largest private fortunes was the stock brokers (*Veksellerere*), although landlords (*Godsejere, Proprietærer og Storforpagterere*) were still wealthy, both

groups having more than 50 times larger average wealth than the country average.<sup>24</sup>

The drops in top wealth shares after the two world wars were partly associated with the sharply progressive wartime wealth taxes.<sup>25</sup> According to Bjerke (1956: 140), however, the fall after the Second World War was also largely due to new routines in the collection and valuation of wealth information of the tax authorities, which in particular made middle-class wealth more visible. Towards the end of the century, the wealth concentration continued declining up to the 1980s, largely because of the increased share of the relatively equally distributed house ownership in the total portfolio (Lavindkomstkommissionen 1979: ch. 5), but thereafter started to increase up to the mid-1990s.

## 2.7 Norway

As for the case of Denmark, the Norwegian wealth concentration data also come mostly from various kinds of wealth taxation. The first observation is from 1789, when the wealth tax assessment that was also launched in Denmark came into place (the two countries were in a political union at this time). As in Denmark, both real and personal assets were taxed, including land, houses, or farms, factories, livestock, mills, shops inventories, and financial instruments. Debts were not deducted, and hence the wealth concept is gross wealth.<sup>26</sup> Our second observation is from 1868, when the Norwegian government launched a national wealth tax assessment. Mohn (1873) presents totals for wealth and households and a tabulation of the wealth held by the top 0.27 per cent (P99.73–100) of all households, including a detailed listing of the fifteen overall largest fortunes.<sup>27</sup> For 1912, we use wealth tax returns from the taxation of 1913–14 (exempting financial wealth), which are presented in tabulated form in Statistics Norway (1915b).<sup>28</sup> Similarly, for 1930 we use tabulated wealth distributions (number of wealth holders in wealth classes along with totals for wealth and tax units) presented in Statistics Norway (1934). From 1948 onwards, we use the tabulation of wealth holders and wealth sums in wealth classes published in the Statistical Yearbook of various years. In the early 1980s the wealth statistics started being reporting for

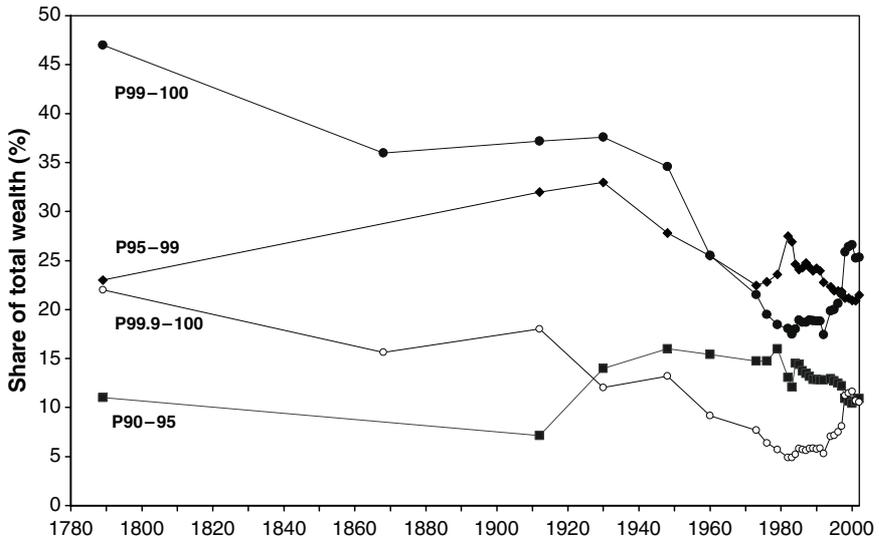
<sup>24</sup> The average net personal wealth in 1925 was Danish kronor (DKR) 6,826 for all of Denmark, DKR366,000 for brokers and DKR359,000 for large landlords (Zeuthen 1928: 447).

<sup>25</sup> On the historical development of Danish wealth taxation, see Christensen (2003: 8, 14).

<sup>26</sup> We use Soltow's distributional estimates (1980) based on 'males or families aged 26 and older', which is not identical to what is used for latter years and probably implies that the 1789 inequality should be adjusted upwards to be fully comparable.

<sup>27</sup> There is no information about whether it was the gross or net wealth that was taxed.

<sup>28</sup> We use tables of wealth holders in wealth classes in Statistics Norway (1915b: 20–1), corroborated by information about reference wealth and tax unit totals in Statistics Norway (1915a: 13–14) and Kiær (1917: 22). The fact that financial assets were exempt in the Norwegian wealth taxation before 1922 is discussed in Statistics Norway (1934: 1).



**Figure 3.6.** Top wealth shares, Norway, 1789–2002

Source: See Ohlsson et al. (2006: data appendix).

individual taxpayers instead of, as before, for households. In order to keep our series as consistent as possible, we attempted to convert the post-1982 observations from reflecting the individual distribution to reflect the household distribution, using a listing of both types by Statistics Norway for the year of 1979.<sup>29</sup>

Figure 3.6 presents the trends in Norwegian wealth concentration between 1789 and 2002. The figure shows the top wealth decile broken up into the bottom 5 per cent (P90–95) of wealth holders, the next 4 per cent (P95–99), the top percentile, as well as the top 0.1 percentile. Norway’s top wealth holders experienced quite different trends in their relative positions over the period. As for the bottom 5 per cent of the top decile, its share decreases between 1789 and 1912 and then jumps up sharply between 1912 and 1930 to land on a fairly stable (though slowly declining) level thereafter. The wealth share of the next 4 per cent exhibits an inverse-U-shaped pattern, increasing sometime in the nineteenth century (we do not know exactly when because of a lack of

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<sup>29</sup> The Statistical Yearbook of Norway of 1981 tabulates the net wealth of both households (table 380: 316) and personal taxpayers (table 368: 306). In the latter case, however, we have no data on the sum of personal wealth of all wealth holders in each wealth class. We therefore insert the sums of wealth observed in the household case into the individual case for the exact corresponding wealth classes. The comparison of wealth shares across these two distributions shows that the individual distribution produces shares that are 25%, 21%, 30%, 44%, and 60% higher than the household distribution for the top 10%, 5%, 1%, 0.1%, 0.01% fractiles, respectively.

data), peaking in 1930 and then declining almost monotonically over the rest of the twentieth century. Finally, the share of the top wealth percentile decreases significantly between 1789 and 1868, both dates being before Norway's industrialization period. The share then goes up slightly to 1912, only to start decreasing again. The most dramatic falls occur in the post-war period, with the top percentile dropping from 34.6 per cent to 18.5 per cent during 1948–79 and the top 0.1 percentile going from 13.2 per cent to 5.7 per cent over the same period. In the 1990s, there is a rapid recovery, which may be related to the oil fortunes being built up in recent times, and to the rise in world stock markets prices that produces a rise in the top shares in other countries over this period. The sizeable increase between 1997 and 1998 can also be explained by a change in the Norwegian tax laws, specifying an increase in the assessed values of corporate stock on personal tax returns.<sup>30</sup>

Despite the seeming disparate trends among Norway's top wealth holders, the evidence presented in Figure 3.6 corresponds well with the official economic and political history of Norway over this period. The Norwegian economy was badly hit by the economic crisis after the Napoleonic wars, when there was a shift in the political power from the great landlords and landed nobility to a class of civil servants.<sup>31</sup> When merchant shipping expanded in the world after 1850, Norwegian ship owners and manufacturers experienced a tremendous economic boost. The list of the average wealth of various occupations in 1868 in Mohn (1873: 24) shows that the four richest groups were manufacturers (having 160 times the country average household wealth), merchants (124 times), ship owners (96 times), and civil servants (87 times). Half a century later, in 1930, a similar comparison between the wealth of top occupations groups and the country average was made (Statistics Norway 1934: 6), and only ship owners had kept the distance from the rest of the population (having 119 times the country average wealth), while merchants (22 times) and manufacturers (19 times) had lost wealth relative to the average.

## 2.8 Sweden

Recent studies of wealth distribution in Sweden have mainly used data from household surveys collected in the last three decades (see, e.g., Bager-Sjögren and Klevmarken 1998; Klevmarken 2004).<sup>32</sup> The only previous comprehensive

<sup>30</sup> The tax-assessed values of stocks were raised in 1998, for stocks listed at the Oslo Stock Exchange from 75% to 100% of the market value and for non-listed stocks from 30% to 65% of an assumed market value.

<sup>31</sup> Historical account taken from the section on Norway's history during 'The Napoleonic Wars and the 19th Century' in *Encyclopædia Britannica Online*.

<sup>32</sup> The main data source in these studies was the panel survey database HUS (for more information see web page <http://www.nek.uu.se/faculty/klevmark/hus.htm>)

studies on the Swedish historical wealth concentration are those by Spånt (1978, 1979), which are based on wealth tax statistics and published in the Censuses, and some special public investigations of the wealth distribution, covering the period 1920–75.<sup>33</sup> Wealth is defined as share of net worth (taxation values). We extend these available data both in scope and detail, first by complementing the years covered by Spånt with a number of years for which we have found satisfactory reference totals for ‘total wealth’ and data on distribution (sometimes only for the very top of the distribution, as in 1937) in the tax statistics. Moreover, we present new series using the same type of tax data for as long as they remain available, which is the period 1978–93. Hence, we are able to construct fully homogenous series of wealth concentration over the period 1920–93, which is the longest available series for Sweden so far. We also add to these series observations based on similar data for the years 2000–2.<sup>34</sup>

We complement the wealth tax returns-based series with new data coming from estate tax material for 1873–7, 1906–8, 1954–5, 1967, and 2002–3,<sup>35</sup> as well as with a number of alternative series for wealth concentration over the past decades.<sup>36</sup> We also add the observation for the year 1800 made by Soltow (1985).<sup>37</sup> Overall, we believe our series give a good sense of the evolution of wealth concentration in Sweden at least from the beginning of the twentieth

<sup>33</sup> The material used was the censuses for 1920, 1930, 1935, 1945, 1951, and surveys done in 1966, 1970, and 1975. The surveys oversampled rich households, so coverage for studying wealth concentration is likely to be good in these studies. For previous periods, Soltow (1985) also reports data for 1800.

<sup>34</sup> The data for 2000–2 are taken from the Longitudinal INdividual DATA (LINDA) for Sweden database, which in turn relies on wealth tax returns (LINDA is a register-based longitudinal data set intended to complement survey databases used in much of the previous work on wealth distribution in Sweden; see web-page <http://linda.nek.uu.se/> for more on LINDA).

<sup>35</sup> The sources of the estate data are Finansdepartementet (1879, 1910) and SOU (1957, 1969, 2004). The 1908 wealth data are based on applying the estate multiplier method to the estate data; see Finansdepartementet (1910: 14–34).

<sup>36</sup> The main complements for the past decades are series from Statistics Sweden based on their HINK-database. This is a population sample where data on wealth are taken from the taxation material and other administrative records using the same household definition as we do in our main series (counting individuals over the age of 18 as individual units, even if they still live with their parents). This household definition is the main difference between HINK and HUS, a much used detailed household survey but with a relatively small sample, where instead ‘kosthushåll’ is used, meaning roughly that everyone living together counts as one household. This difference is the major source of discrepancies between estimates from the two sources. The fact that individuals over the age of 18 who live with their parents form separate households in HINK (and in our historical data) means that we get a substantial number of observations of with very low wealth but who still may enjoy access to the wealth of their parents. This is potentially problematic if we are concerned with issues of living standards but not if we want to estimate the distribution of wealth (in terms of ownership and control).

<sup>37</sup> This observation is based on a wealth census carried out in 1800 and describes the wealth distribution for the population of males aged 20 and older.

century until the present day. We also note that wealth tax data and estate tax data indicate similar patterns of development over the twentieth century.

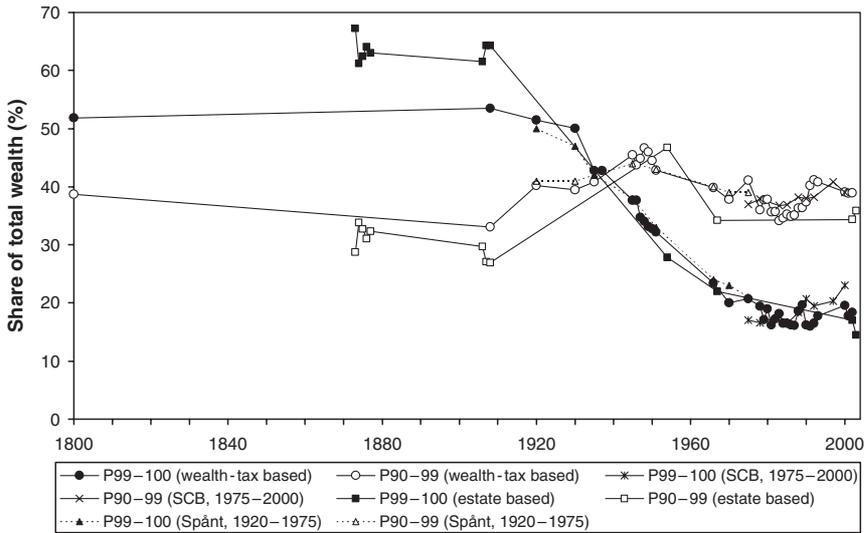
Looking first at the pattern over the nineteenth century, our observations indicate a relatively stable wealth distribution that by today's standards was very unequal. As there are no observations between 1800 and 1873, there is little that can be said about the development over this period, but, given the fact that industrialization is typically considered to have started around 1850 and to have accelerated around 1870, we do not, *a priori*, think that we miss any major changes in the wealth distribution relating to the industrialization.

Over the twentieth century the picture is much clearer. We can draw on multiple sources that overlap in time, and, even though there is still uncertainty about the levels over time, the trends seem relatively certain. The long-run trend in wealth concentration in Sweden over the twentieth century is that the top decile saw its wealth share drop substantially, from around 90 per cent in the early decades of the century, to around 53 per cent around 1980, and then recovering slightly to a level around 60 per cent in recent years. Looking just at this general trend is, however, incomplete if one is really to comprehend the evolution of wealth concentration. Decomposing the top decile and looking separately at the top per cent (P99–100) and the 9 per cent below that (P90–99), we see that the majority of the top decile actually experiences substantial gains in wealth shares over the first half of the century. The overall drop in the top decile share is explained by such dramatic decreases in the top percentile share that this outweighs the increase for the P90–99 group. In the period 1950–80 both groups experience declines in wealth shares, but the decrease is larger for the top percentile, and after 1980 the trend is again the same for both groups, but now the gains in wealth shares are somewhat larger for the top percentile.

From the decompositions of wealth shares in Figure 3.7, the Swedish wealth distribution exhibits a 'Kuznets-type pattern' over the first eighty years of the twentieth century, with a gradual spread of increasing shares to lower fractiles beginning with the biggest increases in the wealth share of the P95–99 group before 1930 (even P99–99.5 increases until 1930), followed by increases for P90–95 up until the end of the Second World War, and then continued and large increases for the rest of the population (P0–90) after that.

How can we account for these developments? Focusing first on the decreases at the very top of the distribution over the first half of the century, we note that most of the decrease takes place between 1930 and 1950, with the sharpest falls in the early 1930s—a time of financial turbulence and in particular the Kreuger crash—and just after the Second World War.<sup>38</sup> The period after 1945 was a time

<sup>38</sup> While Sweden was not as affected by the Great Depression as many other countries, the so-called Kreuger crash in 1932, the bankruptcy of Ivar Kreuger's industrial empire, led to major losses of wealth in Sweden. As an indication of how important this event was, 18% of all bank lending in Sweden at the time was to companies controlled by Kreuger.



**Figure 3.7.** Top 10% wealth shares, showing a bottom 9% (P90–99) and a top 1% (P99–100) share, Sweden, 1800–2003

Source: Authors' calculations.

when many of the reforms discussed in the 1930s, but put on hold by the war, were expected to happen and politically the Communist Party gained ground forcing the Social Democratic Party to move to the left.<sup>39</sup> In particular, the progressive taxes that had been pushed up during the war remained high and also affected wealth holdings, as Sweden had a joint income and wealth tax until 1948. However, the main reason for the decreasing share at the very top is likely to be the increasing share for the lower 9 per cent of the top decile, and the reason for this in turn is likely to be increased wealth accumulation among relatively well-paid individuals. After 1945 the trend of increased accumulation of wealth continues down the distribution. Over the next thirty years the most important change is the increased share of owner-occupied housing in total wealth, which increases from being 17 per cent of all wealth to 45 per cent in 1975 and remains around that in 1997, when owner-occupied apartments and houses, and holiday homes are included (consumer durables also increase a lot but stay a relatively small share of the total).<sup>40</sup> Even if this type of wealth was far from evenly accumulated across the distribution, it accrued to relatively large groups in the distribution, causing wealth concentration to keep falling. Today about half of all households in Sweden own their homes. Over the past decades fluctuations in wealth shares have depended largely on

<sup>39</sup> See, e.g., Steinmo (1993).

<sup>40</sup> See Spånt (1979: 78–80) and Statistics Sweden (2000: 19–21).

movements in real-estate prices and share prices. Increases in the former have a tendency to push up the share of the upper half of the distribution at the expense of the very top, causing inequality to go down, while increases in share prices make the very top share larger, because of share ownership still being very concentrated, which causes inequality to increase. In the year 1997 the top percentile in the wealth distribution owned 62 per cent of all privately held shares and the top 5 per cent held 90 per cent.<sup>41</sup>

### 2.9 Comparing the Long-Run Wealth Concentration across Countries

Above we have presented a compilation of recent information as well as some new evidence on the long-run evolution of wealth inequality in seven Western countries: France, Switzerland, the UK, the USA, Denmark, Norway, and Sweden. Figure 3.8 shows the top wealth percentile in each of these countries for various periods during 1740–2003. Even though great caution should be taken when comparing these series, we still believe that some conclusions can be drawn about the developments of wealth inequality in these countries over the past 200 years.

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Two broad results can be drawn from the series. First, the evidence does not unambiguously support the idea that wealth inequality increases in the early

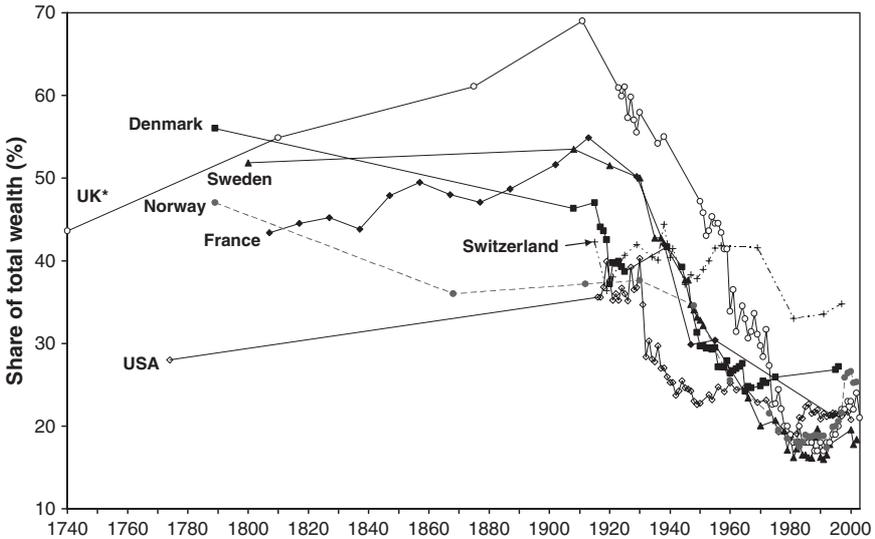


Figure 3.8. Top 1% wealth shares (P99–100), seven Western countries, 1740–2003

Source: See Ohlsson et al. (2006: table 1 and data appendix).

<sup>41</sup> Statistics Sweden (2000: 38–40).

stages of industrialization. Looking at the development of the wealth share of the top percentile among the countries analyzed here, the Scandinavian observations exhibit slightly falling (Denmark and Norway) or fairly stable (Sweden) inequality levels over the initial stages of industrialization (in the late nineteenth century). The UK series (England and Wales) show increasing wealth shares for the top percentile in the period of the two industrial revolutions (1740–1911), as do the USA and French series over the nineteenth century. Overall this suggests that going from a rural to an industrial society, with entirely new stocks and types of wealth being created, may, but does not necessarily, give rise to a large increase in wealth concentration. It also suggests that carefully studying smaller fractiles of the distribution is necessary to get a more complete picture of the development.

Second, while the series do not indicate a clear common pattern over the nineteenth century when industrialization took place (first in the UK, later in the USA and France, and towards the end of the century in Scandinavia) the development over the twentieth century seems unambiguous. Top wealth shares have decreased sharply in all countries studied in this chapter with the exception of Switzerland, where the fall has been small. The magnitude seems to be that the top percentile has decreased its share of total wealth by about a factor of 2 on average (from around 40–50 per cent in the beginning of the century to around 20–25 per cent at the time of writing). It also seems that the lowest point in most countries was around 1980 and that the top percentile wealth share has increased in most countries since then. Even though the main decreases have taken place at the very top of the distribution, the next 4 per cent (P95–99) have also experienced decreasing wealth shares in all countries.

### 3 Concluding Discussion

So what can be said about the relationship between wealth concentration and economic development based on the data provided in this study? Is there a common pattern across countries over the development path? Have initial wealth inequalities been amplified or reduced? Our reading of the data suggests that industrialization was not unambiguously accompanied by increasing wealth inequality. While inequality did increase in the UK, the USA, and in France, it probably did not change much in Sweden, and even decreased slightly in Norway and in Denmark. The fact that the countries in the first group were all large, central economies that were early to industrialize, while the Scandinavian countries were small peripheral economies that industrialized much later, may hold clues to the different experiences, but it does not change the fact that industrialization did not increase wealth concentration everywhere.

The twentieth-century experience seems to have been much more homogenous. As the countries continued to develop, top wealth concentration also dropped substantially. Looking at the details of the pattern by which different fractiles gain wealth shares indicates that this drop was due to a gradual process of wealth spreading in the population—confirming the increase of ‘popular wealth’ identified in, for example, Atkinson and Harrison (1978). In a sense, this pattern is consistent with a Kuznets-type process, where inequality eventually decreases as the whole economy becomes developed. However, it has recently been suggested that this development was probably not driven by such a process, but mainly by exogenous events. Piketty et al. (2006) argue that it was primarily adverse shocks to top wealth during the period 1914–15, mainly in the form of the world wars, that decreased French wealth inequality, and the subsequent introduction of redistributive policies that prevented them from recovering. A similar explanation is given by Kopczuk and Saez (2004b) for the USA. This reasoning has been supported by the fact that Switzerland, which did not take part in either of the wars, exhibits rather stable top wealth shares. Our data on Sweden, which also did not participate in any of the world wars, shows an example of equalization taking place without decreases in top wealth shares driven by exogenous shocks. Even though events such as the Kreuger crash in 1932 hit top wealth holders in Sweden as well, this does not explain the entire drop. Policy may, at least in Sweden, have played a more active role in equalizing wealth than merely holding back the creation of new fortunes after the Second World War. Suggesting that rising taxation and increased redistribution have been important for the decline of wealth inequality is also consistent with the largest drops taking place in the Scandinavian countries, as well as with the smaller decline in Switzerland, with its smaller government.

Overall the data seem to suggest (1) that there was a mixed impact of industrialization and (2) that, in later stages, after countries had become industrial, significant wealth holding spread to wider groups, bringing down wealth inequality. In terms of the often-discussed inverse U-shape over the path of development, the first upward part does not seem to be present everywhere, while the later stage decrease in inequality does fit all countries we have studied. An important addition to this characterization is that this analogy misses an important point which is present in the series. While the inverse U-shape suggests that the distribution of wealth starts at some level in a non-industrialized society, then rises, and later returns to the same level of inequality, all our series indicate that development has unambiguously lowered wealth concentration. The proper characterization of wealth inequality over the path of development hence seems to be that it follows an inverse J-shape, with wealth being more equally distributed today than before industrialization started.

## Author Queries

[AQ1] Source should be Piketty et al. (2006)

[AQ2] Source is: Dell et al. 2007

[AQ3] Sources should read Source (singular)

[AQ4] Sources should read Source (singular)

[AQ5] Sources should read Source (singular)

[AQ6] Sources should read Source (singular)

[AQ7] Sources should read Source (singular)