Growth: Illusions and Realities

A global convergence process in which emerging countries are catching up with developed countries seems well under way today, even though substantial inequalities between rich and poor countries remain. There is, moreover, no evidence that this catch-up process is primarily a result of investment by the rich countries in the poor. Indeed, the contrary is true: past experience shows that the promise of a good outcome is greater when poor countries are able to invest in themselves. Beyond the central issue of convergence, however, the point I now want to stress is that the twenty-first century may see a return to a low-growth regime. More precisely, what we will find is that growth in fact always been relatively slow except in exceptional periods or when catch-up is occurring. Furthermore, all signs are that growth—or at any rate its demographic component—will be even slower in the future.

To understand what is at issue here and its relation to the convergence process and the dynamics of inequality, it is important to decompose the growth of output into two terms: population growth and per capita output growth. In other words, growth always includes a purely demographic component and a purely economic component, and only the latter allows for an improvement in the standard of living. In public debate this decomposition is too often forgotten, as many people seem to assume that population growth has ceased entirely, which is not yet the case—far from it, actually, although all signs indicate that we are headed slowly in that direction. In 2013–2014, for example, global economic growth will probably exceed 3 percent, thanks to very rapid progress in the emerging countries. But global population is still growing at an annual rate close to 1 percent, so that global output per capita is actually growing at a rate barely above 2 percent (as is global income per capita).

GROWTH: ILLUSIONS AND REALITIES

Growth over the Very Long Run

Before turning to present trends, I will go back in time and present the stages and orders of magnitude of global growth since the Industrial Revolution. Consider first Table 2.1, which indicates growth rates over a very long period of time. Several important facts stand out. First, the takeoff in growth that began in the eighteenth century involved relatively modest annual growth rates. Second, the demographic and economic components of growth were roughly similar in magnitude. According to the best available estimates, global output grew at an average annual rate of 1.6 percent between 1700 and 2012, 0.8 percent of which reflects population growth, while another 0.8 percent came from growth in output per head.

Such growth rates may seem low compared to what one often hears in current debates, where annual growth rates below 1 percent are frequently dismissed as insignificant and it is commonly assumed that real growth doesn’t begin until one has achieved 3–4 percent a year or even more, as Europe did in the thirty years after World War II and as China is doing today.

In fact, however, growth on the order of 1 percent a year in both population and per capita output, if continued over a very long period of time, as was the case after 1700, is extremely rapid, especially when compared with the virtually zero growth rate that we observe in the centuries prior to the Industrial Revolution.

<table>
<thead>
<tr>
<th>Years</th>
<th>World output (%)</th>
<th>World population (%)</th>
<th>Per capita output (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1700-2012</td>
<td>1.6</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>1700-1820</td>
<td>0.5</td>
<td>0.4</td>
<td>0.1</td>
</tr>
<tr>
<td>1820-1913</td>
<td>1.5</td>
<td>0.6</td>
<td>0.9</td>
</tr>
<tr>
<td>1913-2012</td>
<td>3.0</td>
<td>1.4</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Note: Between 1913 and 2012, the growth rate of world GDP was 1.6 percent per year on average. This growth rate can be broken down between 1.4 percent for world population and 1.6 percent for per capita GDP.

Sources: See piketty.pse.ens.fr/capital2}.
Indeed, according to Maddison's calculations, both demographic and economic growth rates between year 0 and 1700 were below 0.1 percent (more precisely, 0.06 percent for population growth and 0.02 percent for per capita output).\footnote{1}

To be sure, the precision of such estimates is illusory. We actually possess very little information about the growth of the world's population between 0 and 1700 and even less about output per head. Nevertheless, no matter how much uncertainty there is about the exact figures (which are not very important in any case), there is no doubt whatsoever that the pace of growth was quite slow from antiquity to the Industrial Revolution, certainly no more than 0.1-0.2 percent per year. The reason is quite simple: higher growth rates would imply, implausibly, that the world's population at the beginning of the Common Era was minuscule, or else the standard of living was very substantially below commonly accepted levels of subsistence. For the same reason, growth in the centuries to come is likely to return to very low levels, at least insofar as the demographic component is concerned.

**The Law of Cumulative Growth**

In order to understand this argument better, it may be helpful to pause a moment to consider what might be called "the law of cumulative growth," which holds that a low annual growth rate over a very long period of time gives rise to considerable progress.

Concretely, the population of the world grew at an average annual rate of barely 0.8 percent between 1700 and 2012. Over three centuries, however, this meant that the global population increased more than tenfold. A planet with about 600 million inhabitants in 1700 had more than 7 billion in 2012 (see Figure 2.1). If this pace were to continue for the next three centuries, the world's population would exceed 70 billion in 2500.

To give a clear picture of the explosive effects of the law of cumulative growth, I have indicated in Table 2.2 the correspondence between the annual growth rate (the figure usually reported) and the long-term growth multiplier. For example, a growth rate of 1 percent per year will multiply the population by a factor of 1.15 after thirty years, 3 after one hundred years, 20 after three hundred years, and more than 20,000 after one thousand years. The simple conclusion that jumps out from this table is that growth rates greater than 1-1.5 percent a year cannot be sustained indefinitely without generating vertiginous population increases.

We see clearly how different choices of time frame lead to contradictory perceptions of the growth process. Over a period of one year, 1 percent growth seems very low, almost imperceptible. People living at the time might not notice any change at all. To them, such growth might seem like complete stagnation, in which each year is virtually identical to the previous one. Growth might therefore seem like a fairly abstract notion, a purely mathematical and statistical construct. But if we expand the time frame to that of a generation, that is, about thirty years, which is the most relevant time scale for evaluating change in the society we live in, the same growth rate results in an increase of about a third, which represents a transformation of quite substantial magnitude. Although this is less impressive than growth of 2-2.5 percent per year, which leads to a doubling in every generation, it is still enough to alter society regularly and profoundly and in the very long run to transform it radically.

The law of cumulative growth is essentially identical to the law of cumulative returns, which says that an annual rate of return of a few percent, compounded over several decades, automatically results in a very large increase of

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**Figure 2.1.** The growth of world population, 1700-2012.

World population rose from 600 million inhabitants in 1700 to 7 billion in 2012.

Sources and series: see piketty.pse.ens.fr/capital2c.
INCOME AND CAPITAL

Demographic growth accelerated considerably after 1700, with average growth rates on the order of 0.4 percent per year in the eighteenth century and 0.6 percent in the nineteenth. Europe (including its American offshoot) experienced its most rapid demographic growth between 1700 and 1913, only to see the process reverse in the twentieth century: the rate of growth of the European population fell by half, to 0.4 percent, in the period 1913–2012, compared with 0.8 percent between 1820 and 1913. Here we see the phenomenon known as the demographic transition: the continual increase in life expectancy is no longer enough to compensate for the falling birth rate, and the pace of population growth slowly reverts to a lower level.

In Asia and Africa, however, the birth rate remained high far longer than in Europe, so that demographic growth in the twentieth century reached vertiginous heights: 1.5–2 percent per year, which translates into a fivefold or more increase in the population over the course of a century. Egypt had a population of slightly more than 10 million at the turn of the twentieth century but now numbers more than 80 million. Nigeria and Pakistan each had scarcely more than 20 million people, but today each has more than 160 million.

It is interesting to note that the growth rates of 1.5–2 percent a year attained by Asia and Africa in the twentieth century are roughly the same as those observed in America in the nineteenth and twentieth centuries (see Table 2.3). The United States thus went from a population of less than 3 million in 1780 to 100 million in 1910 and more than 300 million in 2010, or more than a hundredfold increase in just over two centuries, as mentioned earlier. The crucial difference, obviously, is that the demographic growth of the New World was largely due to immigration from other continents, especially Europe, whereas the 1.5–2 percent growth in Asia and Africa is due entirely to natural increase (the surplus of births over deaths).

As a consequence of this demographic acceleration, global population growth reached the record level of 1.4 percent in the twentieth century, compared with 0.4–0.6 percent in the eighteenth and nineteenth centuries (see Table 2.3).

It is important to understand that we are just emerging from this period of open-ended demographic acceleration. Between 1970 and 1990, global population was still growing 1.8 percent annually, almost as high as the absolute historical record of 1.9 percent achieved in the period 1950–1970. For the period 1990–2012, the average rate is still 1.3 percent, which is extremely high.3

According to official forecasts, progress toward the demographic transition at the global level should now accelerate, leading to eventual stabilization of the planet’s population. According to a UN forecast, the demographic growth rate should fall to 0.4 percent by the 2030s and settle around 0.1 percent in the 2070s. If this forecast is correct, the world will return to the very low-growth regime of the years before 1700. The global demographic growth rate would then have followed a gigantic bell curve in the period 1700–2100, with a spectacular peak of close to 2 percent in the period 1950–1990 (see Figure 2.2).

Note, moreover, that the demographic growth anticipated for the second half of the twenty-first century (0.2 percent in the period 2050–2100) is entirely due to the continent of Africa (with annual growth of 1 percent). On the three other continents, the population will probably either stagnate (0.2 percent in America) or decrease (−0.1 percent in Europe and −0.2 percent in Asia). Such a prolonged period of negative demographic growth in peacetime would be unprecedented (see Table 2.3).

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**GROWTH: ILLUSIONS AND REALITIES**

**Table 2.3.**

<table>
<thead>
<tr>
<th>Years</th>
<th>World population (%)</th>
<th>Europe (%)</th>
<th>America (%)</th>
<th>Africa (%)</th>
<th>Asia (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–1700</td>
<td>0.1</td>
<td>0.1</td>
<td>0.0</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>1700–1913</td>
<td>0.8</td>
<td>0.6</td>
<td>1.4</td>
<td>0.9</td>
<td>0.8</td>
</tr>
<tr>
<td>1820–1913</td>
<td>0.4</td>
<td>0.5</td>
<td>0.7</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>1913–2012</td>
<td>0.6</td>
<td>0.8</td>
<td>1.9</td>
<td>0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>Projections</td>
<td>1.4</td>
<td>0.4</td>
<td>1.7</td>
<td>2.2</td>
<td>1.5</td>
</tr>
<tr>
<td>2012–2050</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projections</td>
<td>0.7</td>
<td>−0.1</td>
<td>0.6</td>
<td>1.9</td>
<td>0.5</td>
</tr>
<tr>
<td>2050–2100</td>
<td>0.2</td>
<td>−0.1</td>
<td>0.0</td>
<td>1.0</td>
<td>−0.2</td>
</tr>
</tbody>
</table>

*Note: Between 1913 and 2012, the growth rate of world population was 1.4% per year, including 0.4% for Europe, 1.7% for America, etc. Projections for 2012–2100 correspond to the UN central scenario.*

Sources: See piketty.pse.ens.fr/capital2ic. Projections for 2012–2100 correspond to the UN central scenario.
**Negative Demographic Growth?**

These forecasts are obviously rather uncertain. They depend first on the evolution of life expectancy (and thus in part on advances in medical science) and second on the decisions that future generations will make in regard to childbearing. If life expectancy is taken as given, the fertility rate determines the demographic growth rate. The important point to bear in mind is that small variations in the number of children couples decide to have can have significant consequences for society writ large.

What demographic history teaches us is that these childbearing decisions are largely unpredictable. They are influenced by cultural, economic, psychological, and personal factors related to the life goals that individuals choose for themselves. These decisions may also depend on the material conditions that different countries decide to provide, or not provide, for the purpose of making family life compatible with professional life: schools, day care, gender equality, and so on. These issues will undoubtedly play a growing part in twenty-first-century political debate and public policy. Looking beyond the general schema just outlined, we find numerous regional differences and stunning changes in demographic patterns, many of them linked to specific features of each country's history.

The most spectacular reversal no doubt involves Europe and America. In 1780, when the population of Western Europe was already greater than 100 million and that of North America barely 3 million, no one could have guessed the magnitude of the change that lay ahead. By 2010, the population of Western Europe was just above 410 million, while the North American population had increased to 350 million. According to UN projections, the catch-up process will be complete by 2050, at which time the Western European population will have grown to around 450 million, compared with 550 million for North America. What explains this reversal? Not just the flow of immigrants to the New World but also the markedly higher fertility rate there compared with old Europe. The gap persists to this day, even among groups that came originally from Europe, and the reasons for it remain largely a mystery to demographers. One thing is sure: the higher fertility rate in North America is not due to more generous family policies, since such policies are virtually nonexistent there.

Should the difference be interpreted as reflecting a greater North American faith in the future, a New World optimism, and a greater propensity to think of one's own and one's children's futures in terms of a perpetually growing economy? When it comes to decisions as complex as those related to fertility, no psychological or cultural explanation can be ruled out in advance, and anything is possible. Indeed, US demographic growth has been declining steadily, and current trends could be reversed if immigration into the European Union continues to increase, or fertility increases, or the European life expectancy widens the gap with the United States. United Nations forecasts are not certainties.

We also find spectacular demographic turnarounds within each continent. France was the most populous country in Europe in the eighteenth century (and, as noted, both Young and Malthus saw this as the reason for French rural poverty and even as the cause of the French Revolution). But the demographic transition occurred unusually early in France: a fall in the birth rate led to a virtually stagnant population as early as the nineteenth century. This is generally attributed to de-Christianization, which also came early. Yet an equally unusual leap in the birth rate took place in the twentieth century—a leap often attributed to pronatal policies adopted after the two world wars.
and to the trauma of defeat in 1940. France’s wager may well pay off, since UN forecasts predict that the population of France will exceed that of Germany by 2050 or so. It is difficult, however, to distinguish the various causes of this reversal: economic, political, cultural, and psychological factors all play a part.

On a grander scale, everyone knows the consequences of the Chinese policy to allow only one child per family (a decision made in the 1970s, when China feared being condemned to remain an underdeveloped country, and now in the process of being relaxed). The Chinese population, which was roughly 50 percent greater than India’s when this radical policy was adopted, is now close to being surpassed by that of its neighbor. According to the United Nations, India will be the most populous country in the world by 2020. Yet here, too, nothing is set in stone: population history invariably combines individual choices, developmental strategies, and national psychologies—private motives and power motives. No one at this point can seriously claim to know what demographic turnarounds may occur in the twenty-first century.

It would therefore be presumptuous to regard the official UN predictions as anything other than a “central scenario.” In any case, the United Nations has also published two other sets of predictions, and the gaps between these various scenarios at the 2100 horizon are, unsurprisingly, quite large.

The central scenario is nevertheless the most plausible we have, given the present state of our knowledge. Between 1990 and 2012, the population of Europe was virtually stagnant, and the population of several countries actually decreased. Fertility rates in Germany, Italy, Spain, and Poland fell below 1.5 children per woman in the 2000s, and only an increase in life expectancy coupled with a high level of immigration prevented a rapid decrease of population. In view of these facts, the UN prediction of zero demographic growth in Europe until 2050 and slightly negative rates after that is by no means extravagant. Indeed, it seems to be the most reasonable forecast. The same is true for UN predictions for Asia and other regions: the generations being born now in Japan and China are roughly one-third smaller than the generations born in the 1990s. The demographic transition is largely complete. Changes in individual decisions and government policies may slightly alter these trends; for example, slightly negative rates (such as we see in Japan and Germany) may become slightly positive (as in France and Scandinavia), which would be a significant change, but we are unlikely to see anything more than that, at least for the next several decades.

Of course the very long-run forecasts are much more uncertain. Note, however, that if the rate of population growth observed from 1700 to 2012—0.8 percent per year—were to continue for the next three centuries, the world’s population would be on the order of 70 billion in 2300. To be sure, this cannot be ruled out: childbearing behavior could change, or technological advances might allow growth with much less pollution than is possible to imagine now, with output consisting of new, almost entirely nonmaterial goods and services produced with renewable energy sources exhibiting a negligible carbon footprint. At this point, however, it is hardly an exaggeration to say that a world population of 70 billion seems neither especially plausible nor particularly desirable. The most likely hypothesis is that the global population growth rate over the next several centuries will be significantly less than 0.8 percent. The official prediction of 0.1–0.2 percent per year over the very long run seems rather plausible a priori.

Growth as a Factor for Equalization

In any case, it is not the purpose of this book to make demographic predictions but rather to acknowledge these various possibilities and analyze their implications for the evolution of the wealth distribution. Beyond the consequences for the development and relative power of nations, demographic growth also has important implications for the structure of inequality. Other things being equal, strong demographic growth tends to play an equalizing role because it decreases the importance of inherited wealth: every generation must in some sense construct itself.

To take an extreme example, in a world in which each couple has ten children, it is clearly better as a general rule not to count too much on inherited wealth, because the family wealth will be divided by ten with each new generation. In such a society, the overall influence of inherited wealth would be strongly diminished, and most people would be more realistic to rely on their own labor and savings.

The same would be true in a society where the population is constantly replenished by immigration from other countries, as was the case in America.
Assuming that most immigrants arrive without much wealth, the amount of wealth passed down from previous generations is inherently fairly limited in comparison with new wealth accumulated through savings. Demographic growth via immigration has other consequences, however, especially in regard to inequality between immigrants and natives as well as within each group. Such a society is thus not globally comparable to a society in which the primary source of population growth is natural increase (that is, from new births).

I will show that the intuition concerning the effects of strong demographic growth can to a certain extent be generalized to societies with very rapid economic (and not just demographic) growth. For example, in a society where output per capita grows tenfold every generation, it is better to count on what one can earn and save from one’s own labor: the income of previous generations is so small compared with current income that the wealth accumulated by one’s parents and grandparents doesn’t amount to much.

Conversely, a stagnant or, worse, decreasing population increases the influence of capital accumulated in previous generations. The same is true of economic stagnation. With low growth, moreover, it is fairly plausible that the rate of return on capital will be substantially higher than the growth rate, a situation that, as I noted in the introduction, is the main factor leading toward very substantial inequality in the distribution of wealth over the long run. Capital-dominated societies in the past, with hierarchies largely determined by inherited wealth (a category that includes both traditional rural societies and the countries of nineteenth-century Europe) can arise and subsist only in low-growth regimes. I will consider the extent to which the probable return to a low-growth regime, if it occurs, will affect the dynamics of capital accumulation and the structure of inequality. In particular, inherited wealth will make a comeback—a long-term phenomenon whose effects are already being felt in Europe and that could extend to other parts of the world as well. That is why it is important for present purposes to become familiar with the history of demographic and economic growth.

There is another mechanism whereby growth can contribute to the reduction of inequality, or at least to a more rapid circulation of elites, which must also be discussed. This mechanism is potentially complementary to the first, although it is less important and more ambiguous. When growth is zero or very low, the various economic and social functions as well as types of professional activity, are reproduced virtually without change from generation to generation. By contrast, constant growth, even if it is only 0.5 or 1 or 1.5 percent per year, means that new functions are constantly being created and new skills are needed in every generation. Insofar as tastes and capabilities are only partially transmitted from generation to generation (or are transmitted much less automatically and mechanically than capital in land, real estate, or financial assets are transmitted by inheritance), growth can thus increase social mobility for individuals whose parents did not belong to the elite of the previous generation. This increased social mobility need not imply decreased income inequality, but in theory it does limit the reproduction and amplification of inequalities of wealth and therefore over the long run also limits income inequality to a certain extent.

One should be wary, however, of the conventional wisdom that modern economic growth is a marvelous instrument for revealing individual talents and aptitudes. There is some truth in this view, but since the early nineteenth century it has all too often been used to justify inequalities of all sorts, no matter how great their magnitude and no matter what their real causes may be, while at the same time gracing the winners in the new industrial economy with every imaginable virtue. For instance, the liberal economist Charles Dunoyer, who served as a prefect under the July Monarchy, had this to say in his 1845 book De la liberté du travail (in which he of course expressed his opposition to any form of labor law or social legislation): "One consequence of the industrial regime is to destroy artificial inequalities, but this only highlights natural inequalities all the more clearly." For Dunoyer, natural inequalities included differences in physical, intellectual, and moral capabilities, differences that were crucial to the new economy of growth and innovation that he saw wherever he looked. This was his reason for rejecting state intervention of any kind: "Superior abilities... are the source of everything that is great and useful... Reduce everything to equality and you will bring everything to a standstill." One sometimes hears the same thought expressed today in the idea that the new information economy will allow the most talented individuals to increase their productivity many times over. The plain fact is that this argument is often used to justify extreme inequalities and to defend the privileges of the winners without much consideration for the losers, much less for the facts, and without any real effort to verify whether this very convenient principle can actually explain the changes we observe. I will come back to this point.
THE DYNAMICS OF THE CAPITAL/INCOME RATIO

active participants in deliberations, even though they may not be shareholders), as well as representatives of regional governments, consumers' associations, environmental groups, and so on. The point here is not to idealize this model of shared social ownership, which has its limits, but simply to note that it can be at least as efficient economically as Anglo-Saxon market capitalism or "the shareholder model" (in which all power lies in theory with shareholders, although in practice things are always more complex), and especially to observe that the stakeholder model inevitably implies a lower market valuation but not necessarily a lower social valuation. The debate about different varieties of capitalism erupted in the early 1990s after the collapse of the Soviet Union. Its intensity later waned, in part no doubt because the German economic model seemed to be losing steam in the years after reunification (between 1998 and 2002, Germany was often presented as the sick man of Europe). In view of Germany's relatively good health in the midst of the global financial crisis (2007-2012), it is not out of the question that this debate will be revived in the years to come.6

Shocks to Capital in the Twentieth Century

Now that I have presented a first look at the general evolution of the capital/ income ratio and the public-private split over the long run, I must return to the question of chronology and in particular attempt to understand the reasons first for the collapse of the capital/income ratio over the course of the twentieth century and then for its spectacular recovery.

Note first of all that this was a phenomenon that affected all European countries. All available sources indicate that the changes observed in Britain, France, and Germany (which together in 1910 and again in 1910 account for more than two-thirds of the GDP of Western Europe and more than half of the GDP of all of Europe) are representative of the entire continent: although interesting variations between countries do exist, the overall pattern is the same. In particular, the capital/income ratio in Italy and Spain has risen quite sharply since 1970, even more sharply than in Britain and France, and the available historical data suggest that it was on the order of six or seven years of national income around the turn of the twentieth century. Available estimates for Belgium, the Netherlands, and Austria indicate a similar pattern.

Next, we must insist on the fact that the fall in the capital/income ratio between 1914 and 1945 is explained to only a limited extent by the physical destruction of capital (buildings, factories, infrastructure, etc.) due to the two world wars. In Britain, France, and Germany, the value of national capital was between six and a half and seven years of national income in 1913 and fell to around two and a half years in 1950: a spectacular drop of more than four years of national income (see Figures 4.4 and 4.5). To be sure, there was substantial physical destruction of capital, especially in France during World War I (during which the northeastern part of the country, on the front lines, was severely battered) and in both France and Germany during World War II owing to massive bombing in 1944-1945 (although the periods of combat were shorter than in World War I, the technology was considerably more destructive). All in all, capital worth nearly a year of national income was destroyed in France (accounting for one-fifth to one-quarter of the total decline in the capital/income ratio), and a year and a half in Germany (or roughly a third of the total decline). Although these losses were quite significant, they clearly explain only a fraction of the total drop, even in the two countries most directly affected by the conflicts. In Britain, physical destruction was less extensive—insignificant in World War I and less than 10 percent of national income owing to German bombing in World War II—yet national capital had fallen by more than two years of national income.7

FIGURE 4.5. National capital in Europe, 1870-2010
National capital (sum of public and private capital) is worth between two and three years of national income in Europe in 1950.
Sources and series: See piketty.pse.ens.fr/capital21c.
capital fell by four years of national income (or more than 40 times the loss due to physical destruction), as much as in France and Germany.

In fact, the budgetary and political shocks of two wars proved far more destructive to capital than combat itself. In addition to physical destruction, the main factors that explain the dizzying fall in the capital/income ratio between 1913 and 1950 were on the one hand the collapse of foreign portfolios and the very low savings rate characteristic of the time (together, these two factors, plus physical destruction, explain two-thirds to three-quarters of the drop) and on the other the low asset prices that obtained in the new postwar political context of mixed ownership and regulation (which accounted for one-quarter to one-third of the drop).

I have already mentioned the importance of losses on foreign assets, especially in Britain, where net foreign capital dropped from two years of national income on the eve of World War I to a slightly negative level in the 1950s. Britain's losses on its international portfolio were thus considerably greater than French or German losses through physical destruction of domestic capital, and these more than made up for the relatively low level of physical destruction on British soil.

The decline of foreign capital stemmed in part from expropriations due to revolution and the process of decolonization (think of the Russian loans to which many French savers subscribed in the Belle Époque and that the Bolsheviks repudiated in 1917, or the nationalization of the Suez Canal by Nasser in 1956, to the dismay of the British and French shareholders who owned the canal and had been collecting dividends and royalties on it since 1869) and in even greater part to the very low savings rate observed in various European countries between 1914 and 1945, which led British and French (and to a lesser degree German) savers to gradually sell off their foreign assets. Owing to low growth and repeated recessions, the period 1914-1945 was a dark one for all Europeans but especially for the wealthy, whose income dwindled considerably in comparison with the Belle Époque. Private savings rates were therefore relatively low (especially if we deduct the amount of reparations and replacement of war-damaged property), and some people consequently chose to maintain their standard of living by gradually selling off part of their capital. When the Depression came in the 1930s, moreover, many stock- and bondholders were ruined as firm after firm went bankrupt.

Furthermore, the limited amount of private saving was largely absorbed by enormous public deficits, especially during the wars: national saving, the sum of private and public saving, was extremely low in Britain, France, and Germany between 1914 and 1945. Savers lent massively to their governments, in some cases selling their foreign assets, only to be ultimately expropriated by inflation, very quickly in France and Germany and more slowly in Britain, which created the illusion that private wealth in Britain was faring better in 1950 than private wealth on the continent. In fact, national wealth was equally affected in both places (see Figures 4.4 and 4.5). At times governments borrowed directly from abroad: that is how the United States went from a negative position on the eve of World War I to a positive position in the 1950s. But the effect on the national wealth of Britain or France was the same.

Ultimately, the decline in the capital/income ratio between 1913 and 1950 is the history of Europe's suicide, and in particular of the euthanasia of European capitalists.

This political, military, and budgetary history would be woefully incomplete, however, if we did not insist on the fact that the low level of the capital/income ratio after World War II was in some ways a positive thing, in that it reflected in part a deliberate policy choice aimed at reducing—more or less consciously and more or less efficaciously—the market value of assets and the economic power of their owners. Concretely, real estate values and stocks fell to historically low levels in the 1950s and 1960s relative to the price of goods and services, and this goes some way toward explaining the low capital/income ratio. Remember that all forms of wealth are evaluated in terms of market prices at a given point in time. This introduces an element of arbitrariness (markets are often capricious), but it is the only method we have for calculating the national capital stock: how else could one possibly add up hectares of farmland, square meters of real estate, and blast furnaces?

In the postwar period, housing prices stood at historic lows, owing primarily to rent control policies that were adopted nearly everywhere in periods of high inflation such as the early 1920s and especially the 1940s. Rents rose less sharply than other prices. Housing became less expensive for tenants, while landlords earned less on their properties, so real estate prices fell. Similarly, the value of firms, that is, the value of the stock of listed firms and shares of partnerships, fell to relatively low levels in the 1950s and 1960s. Not only had
confidence in the stock markets been strongly shaken by the Depression and the nationalizations of the postwar period, but new policies of financial regulation and taxation of dividends and profits had been established, helping to reduce the power of stockholders and the value of their shares.

Detailed estimates for Britain, France, and Germany show that low real estate and stock prices after World War II account for a nonnegligible but still minority share of the fall in the capital/income ratio between 1913 and 1950: between one-quarter and one-third of the drop depending on the country, whereas volume effects (low national savings rate, loss of foreign assets, destructions) account for two-thirds to three-quarters of the decline. Similarly, as I will show in the next chapter, the very strong rebound of real estate and stock market prices in the 1970s and 1980s and especially the 1990s and 2000s explains a significant part of the rebound in the capital/income ratio, though still less important than volume effects, linked this time to a structural decrease in the rate of growth.

Capital in America: More Stable Than in Europe

Before studying in greater detail the rebound in the capital/income ratio in the second half of the twentieth century and analyzing the prospects for the twenty-first century, I now want to move beyond the European framework to examine the historical forms and levels of capital in America.

Several facts stand out clearly. First, America was the New World, where capital mattered less than in the Old World, meaning old Europe. More precisely, the value of the stock of national capital, based on numerous contemporary estimates I have collected and compared, as for other countries, was scarcely more than three years of national income around the time that the United States gained its independence, in the period 1770–1810. Farmland was valued at between one and one and a half years of national income (see Figure 4.6). Uncertainties notwithstanding, there is no doubt that the capital/income ratio was much lower in the New World colonies than in Britain or France, where national capital was worth roughly seven years of national income, of which farmland accounted for nearly four (see Figures 3.1 and 3.2).

The crucial point is that the number of hectares per person was obviously far greater in North America than in old Europe. In volume, capital per capita was therefore higher in the United States. Indeed, there was so much land that its market value was very low: anyone could own vast quantities, and therefore it was not worth very much. In other words, the price effect more than counterbalanced the volume effect: when the volume of a given type of capital exceeds certain thresholds, its price will inevitably fall to a level so low that the product of the price and volume, which is the value of the capital, is lower than it would be if the volume were smaller.

The considerable difference between the price of land in the New World and in Europe at the end of the eighteenth century and the beginning of the nineteenth is confirmed by all available sources concerning land purchases and inheritances (such as probate records and wills).

Furthermore, the other types of capital—housing and other domestic capital—were also relatively less important in the colonial era and during the early years of the American republic (in comparison to Europe). The reason for this is different, but the fact is not surprising. New arrivals, who accounted for a very large proportion of the US population, did not cross the Atlantic with their capital of homes or tools or machinery, and it took time to accumulate the equivalent of several years of national income in real estate and business capital.
THE DYNAMICS OF THE CAPITAL/INCOME RATIO

Make no mistake: the low capital/income ratio in America reflected a fundamental difference in the structure of social inequalities compared with Europe. The fact that total wealth amounted to barely three years of national income in the United States compared with more than seven in Europe signified in a very concrete way that the influence of landlords and accumulated wealth was less important in the New World. With a few years of work, the new arrivals were able to close the initial gap between themselves and their wealthier predecessors—or at any rate it was possible to close the wealth gap more rapidly than in Europe.

In 1840, Tocqueville noted quite accurately that “the number of large fortunes [in the United States] is quite small, and capital is still scarce,” and he saw this as one obvious reason for the democratic spirit that in his view dominated there. He added that, as his observations showed, all of this was a consequence of the low price of agricultural land: “In America, land costs little, and anyone can easily become a landowner.” Here we can see at work the Jeffersonian ideal of a society of small landowners, free and equal.

Things would change over the course of the nineteenth century. The share of agriculture in output decreased steadily, and the value of farmland also declined, as in Europe. But the United States accumulated a considerable stock of real estate and industrial capital, so that national capital was close to five years of national income in 1910, versus three in 1810. The gap with old Europe remained, but it had shrunk by half in one century (see Figure 4.6). The United States had become capitalist, but wealth continued to have less influence than in Belle Époque Europe, at least if we consider the vast US territory as a whole. If we limit our gaze to the East Coast, the gap is smaller still. In the film Titanic, the director, James Cameron, depicted the social structure of 1912. He chose to make wealthy Americans appear just as prosperous—and arrogant—as their European counterparts; for instance, the detestable Hockley, who wants to bring young Rose to Philadelphia in order to marry her. (Heroically, she refuses to be treated as property and becomes Rose Dawson.) The novels of Henry James that are set in Boston and New York between 1880 and 1910 also show social groups in which real estate and industrial and financial capital matter almost as much as in European novels: times had indeed changed since the Revolutionary War, when the United States was still a land without capital.

The shocks of the twentieth century struck America with far less violence than Europe, so that the capital/income ratio remained far more stable: it oscillated between four and five years of national income from 1910 to 2010 (see Figure 4.6), whereas in Europe it dropped from more than seven years to less than three before rebounding to five or six (see Figures 3.1–2).

To be sure, US fortunes were also buffeted by the crises of 1914–1945. Public debt rose sharply in the United States due to the cost of waging war, especially during World War II, and this affected national saving in a period of economic instability: the euphoria of the 1920s gave way to the Depression of the 1930s. (Cameron tells us that the odious Hockley commits suicide in October 1929.) Under Franklin D. Roosevelt, moreover, the United States adopted policies designed to reduce the influence of private capital, such as rent control, just as in Europe. After World War II, real estate and stock prices stood at historic lows. When it came to progressive taxation, the United States went much farther than Europe, possibly demonstrating that the goal there was more to reduce inequality than to eradicate private property. No sweeping policy of nationalization was attempted, although major public investments were initiated in the 1930s and 1940s, especially in infrastructures. Inflation and growth eventually returned public debt to a modest level in the 1950s and 1960s, so that public wealth was distinctly positive in 1970 (see Figure 4.7). In}

![Figure 4.7](image_url)
is that the United States enjoyed a much more stable capital/income ratio than Europe in the twentieth century, perhaps explaining why Americans seem to take a more benign view of capitalism than Europeans.

**The New World and Foreign Capital**

Another key difference between the history of capital in America and Europe is that foreign capital never had more than a relatively limited importance in the United States. This is because the United States, the first colonized territory to have achieved independence, never became a colonial power itself.

Throughout the nineteenth century, the United States’ net foreign capital position was slightly negative: what US citizens owned in the rest of the world was less than what foreigners, mainly British, owned in the United States. The difference was quite small, however, at most 10–20 percent of the US national income, and generally less than 10 percent between 1770 and 1920.

For example, on the eve of World War I, US domestic capital—farmland, housing, other domestic capital—stood at 500 percent of national income. Of this total, the assets owned by foreign investors (minus foreign assets held by US investors) represented the equivalent of 10 percent of national income. The national capital, or net national wealth, of the United States was thus about 450 percent of national income. In other words, the United States was 98 percent US-owned and 2 percent foreign-owned. The net foreign asset position was close to balanced, especially when compared to the enormous foreign assets held by Europeans: between one and two years of national income in France and Britain and half a year in Germany. Since the GDP of the United States was barely more than half of the GDP of Western Europe in 1913, this also means that the Europeans of 1913 held only a small proportion of their foreign asset portfolios (less than 5 percent) in the United States. To sum up, the world of 1913 was one in which Europe owned a large part of Africa, Asia, and Latin America, while the United States owned itself.

With the two world wars, the net foreign asset position of the United States reversed itself: it was negative in 1913 but turned slightly positive in the 1920s and remained so into the 1970s and 1980s. The United States financed the belligerents and thus ceased to be a debtor of Europe and became a creditor. It bears emphasizing, however, that the United States’ net foreign assets holdings remained relatively modest: barely 10 percent of national income (see Figure 4.6).
The Capital/Income Ratio over the Long Run

In the previous chapter I examined the metamorphoses of capital in Europe and North America since the eighteenth century. Over the long run, the nature of wealth was totally transformed: capital in the form of agricultural land was gradually replaced by industrial and financial capital and urban real estate. Yet the most striking fact was surely that in spite of these transformations, the total value of the capital stock, measured in years of national income—the ratio that measures the overall importance of capital in the economy and society—appears not to have changed very much over a very long period of time. In Britain and France, the countries for which we possess the most complete historical data, national capital today represents about five or six years of national income, which is just slightly less than the level of wealth observed in the eighteenth and nineteenth centuries and right up to the eve of World War I (about six or seven years of national income). Given the strong, steady increase of the capital/income ratio since the 1950s, moreover, it is natural to ask whether this increase will continue in the decades to come and whether the capital/income ratio will regain or even surpass past levels before the end of the twenty-first century.

The second salient fact concerns the comparison between Europe and the United States. Unsurprisingly, the shocks of the 1914-1918 period affected Europe much more strongly, so that the capital/income ratio was lower there from the 1920s into the 1980s. If we except this lengthy period of war and its aftermath, however, we find that the capital/income ratio has always tended to be higher in Europe. This was true in the nineteenth and early twentieth centuries (when the capital/income ratio was 6 to 7 in Europe compared with 4 to 5 in the United States) and again in the late twentieth and early twenty-first centuries: private wealth in Europe again surpassed US levels in the early 1990s, and the capital/income ratio there is close to 6 today, compared with slightly more than 4 in the United States (see Figures 5.1 and 5.2).
The dynamics of the capital/income ratio

These facts remain to be explained. Why did the capital/income ratio return to historical highs in Europe, and why should it be structurally higher in Europe than in the United States? What magical forces imply that capital in one society should be worth six or seven years of national income rather than three or four? Is there an equilibrium level for the capital/income ratio, and if so how is it determined, what are the consequences for the rate of return on capital, and what is the relation between it and the capital-labor split of national income? To answer these questions, I will begin by presenting the dynamic law that allows us to relate the capital/income ratio in an economy to its savings and growth rates.

The Second Fundamental Law of Capitalism: $\beta = s/g$

In the long run, the capital/income ratio $\beta$ is related in a simple and transparent way to the savings rate $s$ and the growth rate $g$ according to the following formula:

$$\beta = s/g$$

For example, if $s = 12\%$ and $g = 2\%$, then $\beta = s/g = 600\%$.

In other words, if a country saves 12 percent of its national income every year, and the rate of growth of its national income is 2 percent per year, then in the long run the capital/income ratio will be equal to 600 percent: the country will have accumulated capital worth six years of national income.

This formula, which can be regarded as the second fundamental law of capitalism, reflects an obvious but important point: a country that saves a lot and grows slowly will over the long run accumulate an enormous stock of capital (relative to its income), which can in turn have a significant effect on the social structure and distribution of wealth.

Let me put it another way: in a quasi-stagnant society, wealth accumulated in the past will inevitably acquire disproportionate importance.

The return to a structurally high capital/income ratio in the twenty-first century, close to the levels observed in the eighteenth and nineteenth centuries, can therefore be explained by the return to a slow-growth regime. Decreased growth—especially demographic growth—is thus responsible for capital’s comeback.

The capital/income ratio over the long run

The basic point is that small variations in the rate of growth can have very large effects on the capital/income ratio over the long run.

For example, given a savings rate of 12 percent, if the rate of growth falls to 1.5 percent a year (instead of 2 percent), then the long-term capital/income ratio $\beta = s/g$ will rise to eight years of national income (instead of six). If the growth rate falls to 1 percent, then $\beta = s/g$ will rise to twelve years, indicative of a society twice as capital intensive as when the growth rate was 2 percent.

In one respect, this is good news: capital is potentially useful to everyone, and provided that things are properly organized, everyone can benefit from it. In another respect, however, what this means is that the owners of capital—for a given distribution of wealth—potentially control a larger share of total economic resources. In any event, the economic, social, and political repercussions of such a change are considerable.

On the other hand if the growth rate increases to 3 percent, then $\beta = s/g$ will fall to just four years of national income. If the savings rate simultaneously decreases slightly to $s = 9$ percent, then the long-run capital/income ratio will decline to 3.

These effects are all the more significant because the growth rate that figures in the law $\beta = s/g$ is the overall rate of growth of national income, that is, the sum of the per capita growth rate and the population growth rate. In other words, for a savings rate on the order of 10–12 percent and a growth rate of national income per capita on the order of 1.5–2 percent a year, it follows immediately that a country that has near-zero demographic growth and therefore a total growth rate close to 1.5–2 percent, as in Europe, can expect to accumulate a capital stock worth six to eight years of national income, whereas a country with demographic growth on the order of 1 percent a year and therefore a total growth rate of 2.5–3 percent, as in the United States, will accumulate a capital stock worth only three to four years of national income. And if the latter country tends to save a little less than the former, perhaps because its population is not aging as rapidly, this mechanism will be further reinforced as a result. In other words, countries with similar growth rates of income per capita can end up with very different capital/income ratios simply because their demographic growth rates are not the same.

This law allows us to give a good account of the historical evolution of the capital/income ratio. In particular, it enables us to explain why the capital/income ratio seems now—after the shocks of 1914–1945 and the exceptionally
rapid growth phase of the second half of the twentieth century—to be returning to very high levels. It also enables us to understand why Europe tends for structural reasons to accumulate more capital than the United States (or at any rate will tend to do so as long as the US demographic growth rate remains higher than the European, which probably will not be forever). But before I can explain this phenomenon, I must make several conceptual and theoretical points more precise.

A Long-Term Law

First, it is important to be clear that the second fundamental law of capitalism, \( \beta = s/g \), is applicable only if certain crucial assumptions are satisfied. First, this is an asymptotic law, meaning that it is valid only in the long run: if a country saves a proportion \( s \) of its income indefinitely, and if the rate of growth of its national income is \( g \) permanently, then its capital/income ratio will tend closer and closer to \( \beta = s/g \) and stabilize at that level. This won’t happen in a day, however: if a country saves a proportion \( s \) of its income for only a few years, it will not be enough to achieve a capital/income ratio of \( \beta = s/g \).

For example, if a country starts with zero capital and saves 12 percent of its national income for a year, it obviously will not accumulate a capital stock worth six years of its income. With a savings rate of 12 percent a year, starting from zero capital, it will take fifty years to save the equivalent of six years of income, and even then the capital/income ratio will not be equal to 6, because national income will have increased considerably after half a century (unless we assume that the growth rate is actually zero).

The first principle to bear in mind is, therefore, that the accumulation of wealth takes time: it will take several decades for the law \( \beta = s/g \) to become true. Now we can understand why it took so much time for the shocks of 1914–1945 to fade away, and why it is so important to take a very long historical view when studying these questions. At the individual level, fortunes are sometimes amassed very quickly, but at the country level, the movement of the capital/income ratio described by the law \( \beta = s/g \) is a long-run phenomenon.

Hence there is a crucial difference between this law and the law \( \alpha = r \times \beta \), which I called the first fundamental law of capitalism in Chapter 1. According to that law, the share of capital income in national income, \( \alpha \), is equal to the average rate of return on capital, \( r \), times the capital/income ratio, \( \beta \). It is important to realize that the law \( \alpha = r \times \beta \) is actually a pure accounting identity, valid at all times in all places, by construction. Indeed, one can view it as a definition of the share of capital in national income (or of the rate of return on capital, depending on which parameter is easiest to measure) rather than as a law. By contrast, the law \( \beta = s/g \) is the result of a dynamic process: it represents a state of equilibrium toward which an economy will tend if the savings rate is \( s \) and the growth rate \( g \), but that equilibrium state is never perfectly realized in practice.

Second, the law \( \beta = s/g \) is valid only if one focuses on those forms of capital that human beings can accumulate. If a significant fraction of national capital consists of pure natural resources (i.e., natural resources whose value is independent of any human improvement and any past investment), then \( \beta \) can be quite high without any contribution from savings. I will say more later about the practical importance of nonaccumulable capital.

Finally, the law \( \beta = s/g \) is valid only if asset prices evolve on average in the same way as consumer prices. If the price of real estate or stocks rises faster than other prices, then the ratio \( \beta \) between the market value of national capital and the annual flow of national income can again be quite high without the addition of any new savings. In the short run, variations (capital gains or losses) of relative asset prices (i.e., asset prices relative to consumer prices) are often quite a bit larger than volume effects (i.e., effects linked to new savings). If we assume, however, that price variations balance out over the long run, then the law \( \beta = s/g \) is necessarily valid, regardless of the reasons why the country in question chooses to save a proportion \( s \) of its national income.

This point bears emphasizing: the law \( \beta = s/g \) is totally independent of the reasons why the residents of a particular country—or their government—accumulate wealth. In practice, people accumulate capital for all sorts of reasons: for instance, to increase future consumption (or to avoid a decrease in consumption after retirement), or to amass or preserve wealth for the next generation, or again to acquire the power, security, or prestige that often come with wealth. In general, all these motivations are present at once in proportions that vary with the individual, the country, and the age. Quite often, all these motivations are combined in single individuals, and individuals themselves may not always be able to articulate them clearly. In Part Three I discuss in depth the significant implications of these various motivations and mechanisms of accumulation for inequality and the distribution of wealth, the role
of inheritance in the structure of inequality, and, more generally, the social, moral, and political justification of disparities in wealth. At this stage I am simply explaining the dynamics of the capital/income ratio (a question that can be studied, at least initially, independently of the question of how wealth is distributed). The point I want to stress is that the law $\beta = s/g$ applies in all cases, regardless of the exact reasons for a country's savings rate.

This is due to the simple fact that $\beta = s/g$ is the only stable capital/income ratio in a country that saves a fraction $s$ of its income, which grows at a rate $g$.

The argument is elementary. Let me illustrate it with an example. In concrete terms: if a country is saving 12 percent of its income every year, and if its initial capital stock is equal to six years of income, then the capital stock will grow at 2 percent a year, thus exactly the same rate as national income, so that the capital/income ratio will remain stable.

By contrast, if the capital stock is less than six years of income, then a savings rate of 12 percent will cause the capital stock to grow at a rate greater than 2 percent a year and therefore faster than income, so that the capital/income ratio will increase until it attains its equilibrium level.

Conversely, if the capital stock is greater than six years of annual income, then a savings rate of 12 percent implies that capital is growing at less than 2 percent a year, so that the capital/income ratio cannot be maintained at that level and will therefore decrease until it reaches equilibrium.

In each case, the capital/income ratio tends over the long run toward its equilibrium level $\beta = s/g$ (possibly augmented by pure natural resources), provided that the average price of assets evolves at the same rate as consumption prices over the long run.

To sum up: the law $\beta = s/g$ does not explain the short-term shocks to which the capital/income ratio is subject, any more than it explains the existence of world wars or the crisis of 1929—events that can be taken as examples of extreme shocks—but it does allow us to understand the potential equilibrium level toward which the capital/income ratio tends in the long run, when the effects of shocks and crises have dissipated.

**Capital's Comeback in Rich Countries since the 1970s**

In order to illustrate the difference between short-term and long-term movements of the capital/income ratio, it is useful to examine the annual changes observed in the wealthiest countries between 1970 and 2010, a period for which we have reliable and homogeneous data for a large number of countries. To begin, here is a look at the ratio of private capital to national income, whose evolution is shown in Figure 5.3 for the eight richest countries in the world, in order of decreasing GDP: the United States, Japan, Germany, France, Britain, Italy, Canada, and Australia.

Compared with Figures 5.1 and 5.2, as well as with the figures that accompanied previous chapters, which presented decennial averages in order to focus attention on long-term trends, Figure 5.3 displays annual series and shows that the capital/income ratio in all countries varied constantly in the very short run. These erratic changes are due to the fact that the prices of real estate (including housing and business real estate) and financial assets (especially shares of stock) are notoriously volatile. It is always very difficult to set a price on capital, in part because it is objectively complex to foresee the future demand for the goods and services generated by a firm or by real estate and therefore to predict the future flows of profit, dividends, royalties, rents, and so on that the assets in question will yield, and in part because the present value of a building or corporation depends not only on these fundamental factors but also on the price at which
one can hope to sell these assets if the need arises (that is, on the anticipated capital gain or loss).

Indeed, these anticipated future prices themselves depend on the general enthusiasm for a given type of asset, which can give rise to so-called self-fulfilling beliefs: as long as one can hope to sell an asset for more than one paid for it, it may be individually rational to pay a good deal more than the fundamental value of that asset (especially since the fundamental value is itself uncertain), thus giving rise to the general enthusiasm for that type of asset, even though it may be excessive. That is why speculative bubbles in real estate and stocks have existed as long as capital itself; they are consubstantial with its history.

As it happens, the most spectacular bubble in the period 1970–2010 was surely the Japanese bubble of 1990 (see Figure 5.3). During the 1980s, the value of private wealth shot up in Japan from slightly more than four years of national income at the beginning of the decade to nearly seven at the end. Clearly, this enormous and extremely rapid increase was partly artificial: the value of private capital fell sharply in the early 1990s before stabilizing at around six years of national income from the mid-1990s on.

I will not rehearse the history of the numerous real estate and stock market bubbles that inflated and burst in the rich countries after 1970, nor will I attempt to predict future bubbles, which I am quite incapable of doing in any case. Note, however, the sharp correction in the Italian real estate market in 1994–1995 and the bursting of the Internet bubble in 2000–2001, which caused a particularly sharp drop in the capital/income ratio in the United States and Britain (though not as sharp as the drop in Japan ten years earlier). Note, too, that the subsequent US real estate and stock market boom continued until 2007, followed by a deep drop in the recession of 2008–2009. In two years, US private fortunes shrank from five to four years of national income, a drop of roughly the same size as the Japanese correction of 1991–1992.

In other countries, and particularly in Europe, the correction was less severe or even nonexistent: in Britain, France, and Italy, the price of assets, especially in real estate, briefly stabilized in 2008 before starting upward again in 2009–2010, so that by the early 2010s private wealth had returned to the level attained in 2007, if not slightly higher.

The important point I want to emphasize is that beyond these erratic and unpredictable variations in short-term asset prices, variations whose amplitude seems to have increased in recent decades (and we will see later that this can be related to the increase in the potential capital/income ratio), there is indeed a long-term trend at work in all of the rich countries in the period 1970–2010 (see Figure 5.3). At the beginning of the 1970s, the total value of private wealth (net of debt) stood between two and three and a half years of national income in all the rich countries, on all continents. Forty years later, in 2010, private wealth represented between four and seven years of national income in all the countries under study. The general evolution is clear: bubbles aside, what we are witnessing is a strong comeback of private capital in the rich countries since 1970, or, to put it another way, the emergence of a new patrimonial capitalism.

This structural evolution is explained by three sets of factors, which complement and reinforce one another to give the phenomenon a very significant amplitude. The most important factor in the long run is slower growth, especially demographic growth, which, together with a high rate of saving, automatically gives rise to a structural increase in the long-run capital/income ratio, owing to the law $\beta = s/f$. This mechanism is the dominant force in the very long run but should not be allowed to obscure the two other factors that have substantially reinforced its effects over the last few decades: first, the gradual privatization and transfer of public wealth into private hands in the 1970s and 1980s, and second, a long-term catch-up phenomenon affecting real estate and stock market prices, which also accelerated in the 1980s and 1990s in a political context that was on the whole more favorable to private wealth than that of the immediate postwar decades.

Beyond Bubbles: Low Growth, High Saving

I begin with the first mechanism, based on slower growth coupled with continued high saving and the dynamic law $\beta = s/f$. In Table 5.1 I have indicated the average values of the growth rates and private savings rates in the eight richest countries during the period 1970–2010. As noted in Chapter 2, the rate of growth of per capita national income (or the virtually identical growth rate of per capita domestic product) has been quite similar in all the developed countries over the last few decades. If comparisons are made over periods of a few years, the differences can be significant, and these often spur national pride or jealousy. But if one takes averages over longer periods, the fact is that all the rich countries are growing at approximately the same rate.
the long-run accumulation of capital and largely explain why the capital/income ratio is structurally higher in Europe and Japan than in the United States.

Turning now to average savings rates in the period 1970–2010, again one finds large variations between countries: the private savings rate generally ranges between 10 and 12 percent of national income, but it is as low as 7 to 8 percent in the United States and Britain and as high as 14–15 percent in Japan and Italy (see Table 5.1). Over forty years, these differences mount up to create significant variation. Note, too, that the countries that save the most are often those whose population is stagnant and aging (which may justify saving for the purpose of retirement and bequest), but the relation is far from systematic. As noted, there are many reasons why one might choose to save more or less, and it comes as no surprise that many factors (linked to, among other things, culture, perceptions of the future, and distinctive national histories) come into play, just as they do in regard to decisions concerning childbearing and immigration, which ultimately help to determine the demographic growth rate.

If one now combines variations in growth rates with variations in savings rate, it is easy to explain why different countries accumulate very different quantities of capital, and why the capital/income ratio has risen sharply since 1970. One particularly clear case is that of Japan: with a savings rate close to 15 percent a year and a growth rate barely above 2 percent, it is hardly surprising that Japan has over the long run accumulated a capital stock worth six to seven years of national income. This is an automatic consequence of the dynamic law of accumulation, \( \beta = s / g \). Similarly, it is not surprising that the United States, which saves much less than Japan and is growing faster, has a significantly lower capital/income ratio.

More generally, if one compares the level of private wealth in 2010 predicted by the savings flows observed between 1970 and 2010 (together with the initial wealth observed in 1970) with the actual observed levels of wealth in 2010, one finds that the two numbers are quite similar for most countries. The correspondence is not perfect, which shows that other factors also play a significant role. For instance, in the British case, the flow of savings seems quite inadequate to explain the very steep rise in private wealth in this period.

Looking beyond the particular circumstances of this or that country, however, the results are overall quite consistent: it is possible to explain the

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**Table 5.1.**

Growth rates and savings rates in rich countries, 1970–2010

<table>
<thead>
<tr>
<th>Country</th>
<th>Growth rate of national income (%)</th>
<th>Growth rate of population (%)</th>
<th>Growth rate of per capita national income (%)</th>
<th>Private savings rate (net of depreciation) (% national income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>2.8</td>
<td>1.0</td>
<td>1.8</td>
<td>7.7</td>
</tr>
<tr>
<td>Japan</td>
<td>1.5</td>
<td>0.5</td>
<td>2.0</td>
<td>14.6</td>
</tr>
<tr>
<td>Germany</td>
<td>2.0</td>
<td>0.2</td>
<td>1.8</td>
<td>12.2</td>
</tr>
<tr>
<td>France</td>
<td>2.2</td>
<td>0.5</td>
<td>1.7</td>
<td>11.1</td>
</tr>
<tr>
<td>Britain</td>
<td>2.2</td>
<td>0.3</td>
<td>1.9</td>
<td>7.3</td>
</tr>
<tr>
<td>Italy</td>
<td>1.9</td>
<td>0.3</td>
<td>1.6</td>
<td>15.0</td>
</tr>
<tr>
<td>Canada</td>
<td>2.8</td>
<td>1.1</td>
<td>1.7</td>
<td>12.1</td>
</tr>
<tr>
<td>Australia</td>
<td>3.2</td>
<td>1.4</td>
<td>1.7</td>
<td>9.9</td>
</tr>
</tbody>
</table>

*Note: Savings rates and demographic growth vary a lot within rich countries; growth rates of per capita national income vary much less.*

*Sources: See piketty.pse.ens.fr/capital21cc.*
example, if the capital/income ratio is 600 percent (that is, the stock of private wealth represents six years of national income) and the mortality rate of the adult population is 2 percent, then the annual inheritance flow will automatically be 12 percent of national income.

If average wealth at time of death is twice the average wealth of the living, so that $\mu = 2$, then the inheritance flow will be 24 percent of national income (assuming $\beta = 6$ and $m = 2$ percent), which is approximately the level observed in the nineteenth and early twentieth centuries.

Clearly, $\mu$ depends on the age profile of wealth. The more wealth increases with age, the higher $\mu$ will be and therefore the larger the inheritance flow.

Conversely, in a society where the primary purpose of wealth is to finance retirement and elderly individuals consume the capital accumulated during their working lives in their years of retirement (by drawing down savings in a pension fund, for example), in accordance with the "life-cycle theory of wealth" developed by the Italian-American economist Franco Modigliani in the 1950s, then by construction $\mu$ will be almost zero, since everyone aims to die with little or no capital. In the extreme case $\mu = 0$, inheritance vanishes regardless of the values of $\beta$ and $m$. In strictly logical terms, it is perfectly possible to imagine a world in which there is considerable private capital (so $\beta$ is very high) but most wealth is in pension funds or equivalent forms of wealth that vanish at death ("annuitized wealth"), so that the inheritance flow is zero or close to it. Modigliani's theory offers a tranquil, one-dimensional view of social inequality: inequalities of wealth are nothing more than a translation in time of inequalities with respect to work. (Managers accumulate more retirement savings than workers, but both groups consume all their capital by the time they die.) This theory was quite popular in the decades after World War II, when functionalist American sociology, exemplified by the work of Talcott Parsons, also depicted a middle-class society of managers in which inherited wealth played virtually no role. It is still quite popular today among baby boomers.

Our decomposition of the inheritance flow as the product of three forces ($b = \mu \times m \times \beta$) is important for thinking historically about inheritance and its evolution, for each of the three forces embodies a significant set of beliefs and arguments (perfectly plausible a priori) that led many people to imagine, especially during the optimistic decades after World War II, that the end (or at any rate gradual and progressive decrease) of inherited wealth was some-

how the logical and natural culmination of history. However, such a gradual end to inherited wealth is by no means inevitable, as the French case clearly illustrates. Indeed, the U-shaped curve we see in France is a consequence of three U-shaped curves describing each of the three forces, $\mu$, $m$, and $\beta$. Furthermore, the three forces acted simultaneously, in part for accidental reasons, and this explains the large amplitude of the overall change, and in particular the exceptionally low level of inheritance flow in 1950–1960, which led many people to believe that inherited wealth had virtually disappeared.

In Part Two I showed that the capital/income ratio $\beta$ was indeed described by a U-shaped curve. The optimistic belief associated with this first force is quite clear and at first sight perfectly plausible: inherited wealth has tended over time to lose its importance simply because wealth has lost its importance (or, more precisely, wealth in the sense of nonhuman capital, that is, wealth that can be owned, exchanged on a market, and fully transmitted to heirs under the prevailing laws of property). There is no logical reason why this optimistic belief cannot be correct, and it permeates the whole modern theory of human capital (including the work of Gary Becker), even if it is not always explicitly formulated. However, things did not unfold this way, or at any rate not to the degree that people sometimes imagine: landed capital became financial and industrial capital and real estate but retained its overall importance, as can be seen in the fact that the capital/income ratio seems to be about to regain the record level attained in the Belle Epoque and earlier.

For partly technological reasons, capital still plays a central role in production today, and therefore in social life. Before production can begin, funds are needed for equipment and office space, to finance material and immaterial investments of all kinds, and of course to pay for housing. To be sure, the level of human skill and competence has increased over time, but the importance of nonhuman capital has increased proportionately. Hence there is no obvious a priori reason to expect the gradual disappearance of inherited wealth on these grounds.

pp 385–411 (start here):

Mortality over the Long Run

The second force that might explain the natural end of inheritance is increased life expectancy, which lowers the mortality rate $m$ and increases the time to inheritance (which decreases the size of the legacy). Indeed, there is
FIGURE II.2. The mortality rate in France, 1820–2100
The mortality rate fell in France during the twentieth century (rise of life expectancy),
and should increase somewhat during the twenty-first century (baby-boom effect).
Sources and series see piketty.pse.ens.fr/capital21c.

no doubt that the mortality rate has decreased over the long run: the proportion of the population that dies each year is smaller when the life expectancy is eighty than when it is sixty. Other things being equal, for a given β and μ, a society with a lower mortality rate is also a society in which the flow of inheritance is a smaller proportion of national income. In France, the mortality rate has declined inexorably over the course of history, and the same is true of other countries. The French mortality rate was around 2.2 percent (of the adult population) in the nineteenth century but declined steadily throughout the twentieth century, dropping to 1.1–1.2 percent in 2000–2010, a decrease of almost one-half in a century (see Figure II.2).

It would be a serious mistake, however, to think that changes in the mortality rate lead inevitably to the disappearance of inherited wealth as a major factor in the economy. For one thing, the mortality rate began to rise again in France in 2000–2010, and according to official demographic forecasts this increase is likely to continue until 2040–2050, after which adult mortality should stabilize at around 1.4–1.5 percent. The explanation for this is that the baby boomers, who outnumber previous cohorts (but are about the same size as subsequent ones), will reach the end of their life span in this period. In other words, the baby boom, which led to a structural increase in the size of birth cohorts, temporarily reduced the mortality rate simply because the population grew younger and larger. French demographics are fortunately quite simple, so that it is possible to present the principal effects of demographic change in a clear manner. In the nineteenth century, the population was virtually stationary, and life expectancy was about sixty years, so that the average person enjoyed a little over forty years of adulthood, and the mortality rate was therefore close to 1/400, or actually about 0.2 percent. In the twenty-first century, the population, according to official forecasts, will likely stabilize again, with a life expectancy of about eighty-five years, or about sixty-five years of adult life, giving a mortality rate of about 1/65 in a static population, which translates into 1.4–1.5 percent when we allow for slight demographic growth. Over the long run, in a developed country with a quasi-stagnant population like France (where population increase is primarily due to aging), the decrease in the adult mortality rate is about one-third.

The anticipated increase in the mortality rate between 2000–2010 and 2040–2050 due to the aging of the baby boom generation is admittedly a purely mathematical effect, but it is nevertheless important. It partly explains the low inheritance flows of the second half of the twentieth century, as well as the expected sharp increase in these flows in the decades to come. This effect will be even stronger elsewhere. In countries where the population has begun to decrease significantly or will soon do so (owing to a decrease in cohort size)—most notably Germany, Italy, Spain, and of course Japan—this phenomenon will lead to a much larger increase in the adult mortality rate in the first half of the twenty-first century and thus automatically increase inheritance flows by a considerable amount. People may live longer, but they still die eventually; only a significant and steady increase in cohort size can permanently reduce the mortality rate and inheritance flow.

When an aging population is combined with a stabilization of cohort size as in France, however, or even a reduced cohort size as in a number of rich countries, very high inheritance flows are possible. In the extreme case—a country in which the cohort size is reduced by half (because each couple decides to have only one child), the mortality rate, and therefore the inheritance flow, could rise to unprecedented levels. Conversely, in a country where the size of each age cohort doubles every generation, as happened in many
countries in the twentieth century and is still happening in Africa, the mortality rate declines to very low levels, and inherited wealth counts for little (other things equal).

Wealth Ages with Population: The $\mu \times m$ Effect

Let us now forget the effects of variations in cohort size: though important, they are essentially transitory, unless we imagine that in the long run the population of the planet grows infinitely large or infinitely small. Instead, I will adopt the very long-run perspective and assume that cohort size is stable. How does increased life expectancy really affect the importance of inherited wealth? To be sure, a longer life expectancy translates into a structural decrease in the mortality rate. In France, where the average life expectancy in the twenty-first century will be eighty to eighty-five years, the adult mortality rate will stabilize at less than 1.5 percent a year, compared with 2.2 percent in the nineteenth century, when the life expectancy was just over sixty. The increase in the average age of death inevitably gives rise to a similar increase in the average age of heirs at the moment of inheritance. In the nineteenth century, the average age of inheritance was just thirty; in the twenty-first century it will be somewhere around fifty. As Figure 11.3 shows, the difference between the average age of death and the average age of inheritance has always been around thirty years, for the simple reason that the average age of childbirth (often referred to as “generational duration”) has been relatively stable at around thirty over the long run (although there has been a slight increase in the early twenty-first century).

But does the fact that people die later and inherit later imply that inherited wealth is losing its importance? Not necessarily, in part because the growing importance of gifts between living individuals has partly compensated for this aging effect, and in part because it may be that people are inheriting later but receiving larger amounts, since wealth tends to age in an aging society. In other words, the downward trend in the mortality rate—ineluctable in the very long run—can be compensated by a similar structural increase in the relative wealth of older people, so that the product $\mu \times m$ remains unchanged or in any case falls much more slowly than some have believed. This is precisely what happened in France: the ratio $\mu$ of average wealth at death to aver-

![Figure 11.3: Average age of decedents and inheritors: France, 1820–2000](image)

The average of adult decedents rose from less than 60 years to almost 80 years during the twentieth century, and the average age at the time of inheritance rose from 30 years to 50 years.

Sources and series: see piketty.pse.ens.fr/capital21c.

The transmission rate of wealth of the living rose sharply after 1950–1960, and this gradual aging of wealth explains much of the increased importance of inherited wealth in recent decades.

Concretely, one finds that the product $\mu \times m$, which by definition measures the annual rate of transmission by inheritance (or, in other words, the inheritance flow expressed as a percentage of total private wealth), clearly began to rise over the past few decades, despite the continuing decrease in the mortality rate, as Figure 11.4 shows. The annual rate of transmission by inheritance, which nineteenth-century economists called the “rate of estate devolution,” was according to my sources relatively stable from the 1820s to the 1910s at around 3.3–3.5 percent, or roughly 1/30. It was also said in those days that a fortune was inherited on average once every thirty years, that is, once a generation, which is a somewhat too static view of things but partially justified by the reality of the time. The transmission rate decreased sharply in the period 1910–1950 and in the 1950s stood at about 2 percent, before rising steadily to above 2.5 percent in 2000–2010.
To sum up: inheritance occurs later in aging societies, but wealth also ages, and the latter tends to compensate the former. In this sense, a society in which people die older is very different from a society in which they don’t die at all and inheritance effectively vanishes. Increased life expectancy delays important life events; people study longer, start work later, inherit later, retire later, and die later. But the relative importance of inherited wealth as opposed to earned income does not necessarily change, or at any rate change much less than people sometimes imagine. To be sure, inheriting later in life may make choosing a profession more frequently necessary than in the past. But this is compensated by the inheritance of larger amounts or by the receipt of gifts. In any case, the difference is more one of degree than the dramatic change of civilization that is sometimes imagined.

Wealth of the Dead, Wealth of the Living

It is interesting to take a closer look at the evolution of μ, the ratio between average wealth at death and average wealth of the living, which I have presented in Figure 11.5. Note, first, that over the course of the past two centuries, from 1820 to the present, the dead have always been (on average) wealthier than the living in France: μ has always been greater than 100 percent, except in the period around World War II (1940-1950), when the ratio (without correcting for gifts made prior to death) fell to just below 100 percent. Recall that according to Modigliani’s life-cycle theory, the primary reason for amassing wealth, especially in aging societies, is to pay for retirement, so that older individuals should consume most of their savings during old age and should therefore die with little or no wealth. This is the famous “Modigliani triangle,” taught to all students of economics, according to which wealth at first increases with age as individuals accumulate savings in anticipation of retirement and then decreases. The ratio μ should therefore be equal to zero or close to it, in any case much less than 100 percent. But this theory of capital and its evolution in advanced societies, which is perfectly plausible a priori, cannot explain the observed facts—to put it mildly. Clearly, saving for retirement is only one of many reasons—and not the most important reason—why people accumulate wealth: the desire to
perpetuate the family fortune has always played a central role. In practice, the various forms of annuitized wealth, which cannot be passed on to descendants, account for less than 5 percent of private wealth in France and at most 15–20 percent in the English-speaking countries, where pension funds are more developed. This is not a negligible amount, but it is not enough to alter the fundamental importance of inheritance as a motive for wealth accumulation (especially since life-cycle savings may not be a substitute for but rather a supplement to transmissible wealth). To be sure, it is quite difficult to say how different wealth accumulation would have been in the twentieth century in the absence of pay-as-you-go public pension systems, which guaranteed the vast majority of retirees a decent standard of living in a more reliable and equitable way than investment in financial assets, which plummeted after the war, could have done. It is possible that without such public pension systems, the overall level of wealth accumulation (measured by the capital/income ratio) would have been even greater than it is today. In any case, the capital/income ratio is approximately the same today as it was in the Belle Époque (when a shorter life expectancy greatly reduced the need to accumulate savings in anticipation of retirement), and annuitized wealth accounts for only a slightly larger portion of total wealth than it did a century ago.

Note also the importance of gifts between living individuals over the past two centuries, as well as their spectacular rise over the past several decades. The total annual value of gifts was 30–40 percent of the annual value of inheritances from 1820 to 1870 (during which time gifts came mainly in the form of dowries, that is, gifts to the spouse at the time of marriage, often with restrictions specified in the marriage contract). Between 1870 and 1970 the value of gifts decreased slightly, stabilizing at about 20–30 percent of inheritances, before increasing strongly and steadily to 40 percent in the 1980s, 60 percent in the 1990s, and more than 80 percent in 2000–2010. Today, transmission of capital by gift is nearly as important as transmission by inheritance. Gifts account for almost half of total transmission flows (inheritances and gifts), and it is therefore essential to take them into account. Concretely, if gifts prior to death were not included, we would find that average wealth at death in 2000–2010 was just over 20 percent higher than average wealth of the living. But this is simply a reflection of the fact that the dead have already passed on nearly half of their assets. If we include gifts made prior to death, we find that the (corrected) value of μ is actually greater than 220 percent: the corrected wealth of the dead is nearly twice as great as that of the living. We are once again living in a golden age of gift giving, much more so than in the nineteenth century.

It is interesting to note that the vast majority of gifts, today as in the nineteenth century, go to children, often in the context of a real estate investment, and they are given on average about ten years before the death of the donor (a gap that has remained relatively stable over time). The growing importance of gifts since the 1970s has led to a decrease in the average age of the recipient: in 1900–2010, the average age of an heir is forty-five to fifty, while that of the recipient of a gift is thirty-five to forty, so that the difference between today and the nineteenth or early twentieth centuries is not as great as it seems from Figure 11.3. The most convincing explanation of this gradual and progressive increase of gift giving, which began in the 1970s, well before fiscal incentives were put in place in 1980–2000, is that parents with means gradually became aware that owing to the increase in life expectancy, there might be good reasons to share their wealth with their children at the age of thirty-five to forty rather than forty-five to fifty or even later. In any case, whatever the exact role of each of the various possible explanations, the fact is that the upsurge in gift giving, which we also find in other European countries, including Germany, is an essential ingredient in the revived importance of inherited wealth in contemporary society.

The Fifties and the Eighties: Age and Fortune in the Belle Époque

In order to better understand the dynamics of wealth accumulation and the detailed data used to calculate μ, it is useful to examine the evolution of the average wealth profile as a function of age. Table 11.1 presents wealth-age profiles for a number of years between 1820 and 2010. The most striking fact is no doubt the impressive aging of wealth throughout the nineteenth century, as capital became increasingly concentrated. In 1820, the elderly were barely wealthier on average than people in their fifties (which I have taken as a reference group): sexagenarians were 34 percent wealthier and octogenarians 53 percent wealthier. But the gaps widened steadily thereafter. By 1900–1910, the average wealth of sexagenarians and septuagenarians was on the order of 60–80 percent higher than the reference group, and octogenarians were two and a half times wealthier. Note that these are averages for all of France. If we restrict our attention to Paris, where the largest fortunes were concentrated, the situation is even more extreme. On the eve of World War I, Parisian fortunes swelled with
age, with septuagenarians and octogenarians on average three or even four times as wealthy as fifty-year-olds. To be sure, the majority of people died with no wealth at all, and the absence of any pension system tended to aggravate this “golden-age poverty.” But among the minority with some fortune, the aging of wealth is quite impressive. Quite clearly, the spectacular enrichment of octogenarians cannot be explained by income from labor or entrepreneurial activity: it is hard to imagine people in their eighties creating a new startup every morning.

This enrichment of the elderly is striking, in part because it explains the high value of μ, the ratio of average wealth at time of death to average wealth of the living, in the Belle Époque (and therefore the high inheritance flows), and even more because it tells us something quite specific about the underlying economic process. The individual data we have are quite clear on this point: the very rapid increase of wealth among the elderly in the late nineteenth and early twentieth centuries was a straightforward consequence of the inequality $r > g$ and of the cumulative and multiplicative logic it implies. Concretely, elderly people with the largest fortunes often enjoyed capital incomes far in excess of what they needed to live. Suppose, for example, that they obtained a return of 5 percent and consumed two-fifths of their capital income while reinvesting the other three-fifths. Their wealth would then have grown at a rate of 3 percent a year, and by the age of eighty-five they would have been more than twice as rich as they were at age sixty. The mechanism is simple but extremely powerful, and it explains the observed facts very well, except that the people with the largest fortunes could often save more than three-fifths of their capital income (which would have accelerated the divergence process), and the general growth of mean income and wealth was not quite zero (but about 1 percent a year, which would have slowed it down a bit).

The study of the dynamics of accumulation and concentration of wealth in France in 1870–1914, especially in Paris, has many lessons to teach about the world today and in the future. Not only are the data exceptionally detailed and reliable, but this period is also emblematic of the first globalization of trade and finance. As noted, it had modern, diversified capital markets, and individuals held complex portfolios consisting of domestic and foreign, public and private assets paying fixed and variable amounts. To be sure, economic growth was only 1–1.5 percent a year, but such a growth rate, as I showed earlier, is actually quite substantial from a generational standpoint or in the historical perspective of the very long run. It is by no means indicative of a static agricultural society. This was an era of technological and industrial innovation: the automobile, electricity, the cinema, and many other novelties became important in these years, and many of them originated in France, at least in part. Between 1870 and 1914, not all fortunes of fifty- and sixty-year-olds were inherited. Far from it: we find a considerable number of wealthy people who made their money through entrepreneurial activities in industry and finance.

Nevertheless, the dominant dynamic, which explains most of the concentration of wealth, was an inevitable consequence of the inequality $r > g$. Regardless of whether the wealth a person holds at age fifty or sixty is inherited or earned, the fact remains that beyond a certain threshold, capital tends to reproduce itself and accumulates exponentially. The logic of $r > g$ implies that the entrepreneur always tends to turn into a rentier. Even if this happens later in life, the phenomenon becomes important as life expectancy increases.
fact that a person has good ideas at age thirty or forty does not imply that she will still be having them at seventy or eighty, yet her wealth will continue to increase by itself. Or it can be passed on to the next generation and continue to increase there. Nineteenth-century French economic elites were creative and dynamic entrepreneurs, but the crucial fact remains that their efforts ultimately—and largely unwittingly—reinforced and perpetuated a society of rentiers owing to the logic of \( r > g \).

The Rejuvenation of Wealth Owing to War

This self-sustaining mechanism collapsed owing to the repeated shocks suffered by capital and its owners in the period 1914–1945. A significant rejuvenation of wealth was one consequence of the two world wars. One sees this clearly in Figure 11.5: for the first time in history—and to this day the only time—average wealth at death in 1940–1950 fell below the average wealth of the living. This fact emerges more clearly in the detailed profiles by age cohort in Table 11.1. In 1912, on the eve of World War I, octogenarians were more than two and a half times as wealthy as people in their fifties. In 1931, they were only 50 percent wealthier. And in 1947, the fifty-somethings were 40 percent wealthier than the eighty-somethings. To add insult to injury, the octogenarians even fell slightly behind people in their forties in that year. This was a period in which all old certainties were called into question. In the years after World War II, the plot of wealth versus age suddenly took the form of a bell curve with a peak in the fifty to fifty-nine age bracket—a form close to the “Modigliani triangle,” except for the fact that wealth did not fall to zero at the most advanced ages. This stands in sharp contrast to the nineteenth century, during which the wealth-age curve was monotonically increasing with age.

There is a simple explanation for this spectacular rejuvenation of wealth. As noted in Part Two, all fortunes suffered multiple shocks in the period 1914–1945—destruction of property, inflation, bankruptcy, expropriation, and so on—so that the capital/income ratio fell sharply. To a first approximation, one might assume that all fortunes suffered to the same degree, leaving the age profile unchanged. In fact, however, the younger generations, which in any case did not have much to lose, recovered more quickly from these wartime shocks than their elders did. A person who was sixty years old in 1940 and lost everything he owned in a bombardment, expropriation, or bankruptcy had little hope of recovering. He would likely have died between 1950 and 1960 at the age of seventy or eighty with nothing to pass on to his heirs. Conversely, a person who was thirty in 1940 and lost everything (which was probably not much) still had plenty of time to accumulate wealth after the war and by the 1950s would have been in his forties and wealthier than that septuagenarian. The war reset all counters to zero, or close to zero, and inevitably resulted in a rejuvenation of wealth. In this respect, it was indeed the two world wars that wiped the slate clean in the twentieth century and created the illusion that capitalism had been overcome.

This is the central explanation for the exceptionally low inheritance flows observed in the decades after World War II: individuals who should have inherited fortunes in 1950–1960 did not inherit much because their parents had not had time to recover from the shocks of the previous decades and died without much wealth to their names.

In particular, this argument enables us to understand why the collapse of inheritance flows was greater than the collapse of wealth itself—nearly twice as large, in fact. As I showed in Part Two, total private wealth fell by more than two-thirds between 1910–1920 and 1950–1960: the private capital stock decreased from seven years of national income to just two to two and a half years (see Figure 3.6). The annual flow of inheritance fell by almost five-sixths, from 25 percent of national income on the eve of World War I to just 4–5 percent in the 1950s (see Figure 11.1).

The crucial fact, however, is that this situation did not last long. "Reconstruction capitalism" was by its nature a transitional phase and not the structural transformation some people imagined. In 1950–1960, as capital was once again accumulated and the capital/income ratio \( \beta \) rose, fortunes began to age once more, so that the ratio \( \mu \) between average wealth at death and average wealth of the living also increased. Growing wealth went hand in hand with aging wealth, thereby laying the groundwork for an even stronger comeback of inherited wealth. By 1960, the profile observed in 1947 was already a memory: sexagenarians and septuagenarians were slightly wealthier than people in their fifties (see Table 11.1). The octogenarians' turn came in the 1980s. In 1990–2000 the graph of wealth against age was increasing even more steeply. By 2010, the average wealth of people in their eighties was more than 30 percent higher than that of people in their fifties. If one were to include
How Will Inheritance Flows Evolve in the Twenty-First Century?

In view of the rapid increase of inheritance flows in recent decades, it is natural to ask if this increase is likely to continue. Figure 11.6 shows two possible evolutions for the twenty-first century. The central scenario is based on the assumption of an annual growth rate of 1.7 percent for the period 2010–2100 and a net return on capital of 3 percent. The alternative scenario is based on the assumption that growth will be reduced to 1 percent for the period 2010–2100, while the return on capital will rise to 5 percent. This could happen, for instance, if all taxes on capital and capital income, including the corporate income tax, were eliminated, or if such taxes were reduced while capital's share of income increased.

In the central scenario, simulations based on the theoretical model (which successfully accounts for the evolutions of 1820–2010) suggest that the annual inheritance flow would continue to grow until 2030–2040 and then stabilize at around 16–17 percent of national income. According to the alternative scenario, the inheritance flow should increase even more until 2060–2070 and then stabilize at around 24–25 percent of national income, a level similar to that observed in 1870–1910. In the first case, inherited wealth would make only a partial comeback; in the second, its comeback would be complete (as far as the total amount of inheritances and gifts is concerned). In both cases, the flow of inheritances and gifts in the twenty-first century is expected to be quite high, and in particular much higher than it was during the exceptionally low phase observed in the mid-twentieth century.

Such predictions are obviously highly uncertain and are of interest primarily for their illustrative value. The evolution of inheritance flows in the twenty-first century depends on many economic, demographic, and political factors, and history shows that these are subject to large and highly unpredictable changes. It is easy to imagine other scenarios that would lead to different outcomes: for instance, a spectacular acceleration of demographic or economic growth (which seems rather implausible) or a radical change in public policy in regard to private capital or inheritance (which may be more realistic).

It is also important to note that the evolution of the wealth-age profile depends primarily on savings behavior, that is, on the reasons why different groups of people accumulate wealth. As already discussed at some length, there are many such reasons, and their relative importance varies widely from individual to individual. One may save in anticipation of retirement or job loss (life-cycle or precautionary saving). Or one may save to amass or perpetuate a family fortune. Or, indeed, one may simply have a taste for wealth and the prestige that sometimes goes with it (dynastic saving or pure accumulation). In the abstract, it is perfectly possible to imagine a world in which all people would choose to convert all of their wealth into annuities and die with nothing. If such behavior were suddenly to become predominant in the twenty-first
the evolution of the ratio $\mu$ and the annual inheritance flow. It also explains why the observed and simulated series are so close for the entire period 1820–2010.21

Uncertainties notwithstanding, it is therefore natural to think that these simulations provide a useful guide for the future. Theoretically, one can show that for a large class of savings behaviors, when growth is low compared to the return on capital, the increase in $\mu$ nearly exactly balances the decrease in the mortality rate $m$, so that the product $\mu \times m$ is virtually independent of life expectancy and is almost entirely determined by the duration of a generation. The central result is that a growth of about 1 percent is in this respect not very different from zero growth: in both cases, the intuition that an aging population will spend down its savings and thus put an end to inherited wealth turns out to be false. In an aging society, heirs come into their inheritances later in life but inherit larger amounts (at least for those who inherit anything), so the overall importance of inherited wealth remains unchanged.22

From the Annual Inheritance Flow to the Stock of Inherited Wealth

How does one go from the annual inheritance flow to the stock of inherited wealth? The detailed data assembled on inheritance flows and ages of the deceased, their heirs, and gift givers and recipients enable us to estimate for each year in the period 1820–2010 the share of inherited wealth in the total wealth of individuals alive in that year (the method is essentially to add up bequests and gifts received over the previous thirty years, sometimes more in the case of particularly early inheritances or exceptionally long lives or less in the opposite case) and thus to determine the share of inherited wealth in total private wealth. The principal results are indicated in Figure 11.7, where I also show the results of simulations for the period 2010–2100 based on the two scenarios discussed above.

The orders of magnitude to bear in mind are the following. In the nineteenth and early twentieth centuries, when the annual inheritance flow was 20–25 percent of national income, inherited wealth accounted for nearly all private wealth: somewhere between 80 and 90 percent, with an upward trend. Note, however, that in all societies, at all levels of wealth, a significant number of wealthy individuals, between 10 and 20 percent, accumulate fortunes during...
Inherited wealth represents 80–90 percent of total wealth in France in the nineteenth century; this share fell to 40–50 percent during the twentieth century, and might return to 80–90 percent during the twenty-first century.

Sources and series: see piketty.pse.ens.fr/capital2ic.

Over the course of the twentieth century, following the collapse of inheritance flows, this equilibrium changed dramatically. The low point was attained in the 1970s: after several decades of small inheritances and accumulation of new wealth, inherited capital accounted for just over 40 percent of total private capital. For the first time in history (except in new countries), wealth accumulated in the lifetime of the living constituted the majority of all wealth: nearly 60 percent. It is important to realize two things: first, the nature of capital effectively changed in the postwar period, and second, we are just emerging from this exceptional period. Nevertheless, we are now clearly out of it: the share of inherited wealth in total wealth has grown steadily since the 1970s. Inherited wealth once again accounted for the majority of wealth in the 1980s, and according to the latest available figures it represents roughly two-thirds of private capital in France in 2010, compared with barely one-third of capital accumulated from savings. In view of today’s very high inheritance flows, it is quite likely, if current trends continue, that the share of inherited wealth will continue to grow in the decades to come, surpassing 70 percent by 2020 and approaching 80 percent in the 2030s. If the scenario of 1 percent growth and 5 percent return on capital is correct, the share of inherited wealth could continue to rise, reaching 90 percent by the 2050s, or approximately the same level as in the Belle Époque.

Thus we see that the U-shaped curve of annual inheritance flows as a proportion of national income in the twentieth century went hand in hand with an equally impressive U-shaped curve of accumulated stock of inherited wealth as a proportion of national wealth. In order to understand the relation between these two curves, it is useful to compare the level of inheritance flows to the savings rate, which as noted in Part Two is generally around 10 percent of national income. When the inheritance flow is 20–25 percent of national income, as it was in the nineteenth century, then the amounts received each year as bequests and gifts are more than twice as large as the flow of new savings. If we add that a part of the new savings comes from the income of inherited capital (indeed, this was the major part of saving in the nineteenth century), it is clearly inevitable that inherited wealth will largely predominate over saved wealth. Conversely, when the inheritance flow falls to just 5 percent of national income, or half of new savings (again assuming a savings rate of 10 percent), as in the 1950s, it is not surprising that saved capital will dominate inherited capital. The central fact is that the annual inheritance flow surpassed the savings rate again in the 1980s and rose well above it in 2000–2010. Today it is nearly 15 percent of national income (counting both inheritances and gifts).

To get a better idea of the sums involved, it may be useful to recall that household disposable (monetary) income is 70–75 percent of national income in a country like France today (after correcting for transfers in kind, such as health, education, security, public services, etc. not included in disposable income). If we express the inheritance flow not as a proportion of national income, as I have done thus far, but as a proportion of disposable income, we find that the inheritances and gifts received each year by French households...
amounted to about 20 percent of their disposable income in the early 2010s, so that in this sense inheritance is already as important today as it was in 1820–1910 (see Figure 11.8). As noted in Chapter 5, it is probably better to use national income (rather than disposable income) as the reference denominator for purposes of spatial and temporal comparison. Nevertheless, the comparison with disposable income reflects today’s reality in a more concrete way and shows that inherited wealth already accounts for one-fifth of household monetary resources (available for saving, for example) and will soon account for a quarter or more.

Back to Vautrin’s Lecture

In order to have a more concrete idea of what inheritance represents in different people’s lives, and in particular to respond more precisely to the existential question raised by Vautrin’s lecture (what sort of life can one hope to live on earned income alone, compared to the life one can lead with inherited wealth?), the best way to proceed is to consider things from the point of view of successive generations in France since the beginning of the nineteenth century and compare the various resources to which they would have had access in their lifetime. This is the only way to account correctly for the fact that an inheritance is not a resource one receives every year.24

Consider first the evolution of the share of inheritance in the total resources available to generations born in France in the period 1790–2030 (see Figure 11.9). I proceeded as follows. Starting with series of annual inheritance flows and detailed data concerning ages of the deceased, heirs, gift givers, and gift recipients, I calculated the share of inherited wealth in total available resources as a function of year of birth. Available resources include both inherited wealth (bequests and gifts) and income from labor, less taxes, capitalized over the individual’s lifetime using the average net return on capital in each year. Although this is the most reasonable way to approach the question initially, note that it probably leads to a slight underestimate of the share of inheritance, because heirs (and people with large fortunes more generally) are
usually able to obtain a higher return on capital than the interest rate paid on savings from earned income.26

The results obtained are the following. If we look at all people born in France in the 1790s, we find that inheritance accounted for about 24 percent of the total resources available to them during their lifetimes, so that income from labor accounted for about 76 percent. For individuals born in the 1870s, the share of inheritance was 25 percent, leaving 75 percent for earned income. The same is approximately true for all the cohorts of the nineteenth century and up to World War I. Note that the 25 percent share for inheritance is slightly higher than the inheritance flow expressed as a percentage of national income (20–25 percent in the nineteenth century); this is because income from capital, generally about a third of national income, is de facto reassigned in part to inheritance and in part to earned income.27

For cohorts born in the 1870s and after, the share of inheritance in total resources begins to decline gradually. This is because a growing share of these individuals should have inherited after World War I and therefore received less than expected owing to the shocks to their parents’ assets. The lowest point was reached by cohorts born in 1910–1920: these individuals should have inherited in the years between the end of World War II and 1960, that is, at a time when the inheritance flow had reached its lowest level, so that inheritance accounted for only 8–10 percent of total resources. The rebound began with cohorts born in 1930–1950, who inherited in 1970–1990, and for whom inheritance accounted for 12–14 percent of total resources. But it is above all for cohorts born in 1970–1980, who began to receive gifts and bequests in 2000–2020, that inheritance regained an importance not seen since the nineteenth century: around 22–24 percent of total resources. These figures show clearly that we have only just emerged from the “end of inheritance” era, and they also show how differently different cohorts born in the twentieth century experienced the relative importance of savings and inheritance: the baby boom cohorts had to make it on their own, almost as much as the interwar and turn-of-the-century cohorts, who were devastated by war. By contrast, the cohorts born in the last third of the century experienced the powerful influence of inherited wealth to almost the same degree as the cohorts of the nineteenth and twenty-first centuries.

Rastignac’s Dilemma

Thus far I have examined only averages. One of the principal characteristics of inherited wealth, however, is that it is distributed in a highly unequalitarian fashion. By introducing into the previous estimates inequality of inheritance on the one hand and inequality of earned income on the other, we will at last be able to analyze the degree to which Vautrin’s somber lesson was true in different periods. Figure 11.10 shows that the cohorts born in the late eighteenth century and throughout the nineteenth century, including Eugène de Rastignac’s cohort (Balzac tells us that he was born in 1798), did indeed face the terrible dilemma described by the ex-convict: those who could somehow lay hands on inherited wealth were able to live far better than those obliged to make their way by study and work.

In order to make it possible to interpret the different levels of resources as concretely and intuitively as possible, I have expressed resources in terms of multiples of the average income of the least well paid 50 percent of workers in each period. We may take this baseline as the standard of living of the “lower class,” which generally claimed about half of national income in this period. This is a useful reference point for judging inequality in a society.28

The principal results obtained are the following. In the nineteenth century, the lifetime resources available to the wealthiest 1 percent of heirs (that is, the individuals inheriting the top 1 percent of legacies in their generation) were 25–30 times greater than the resources of the lower class. In other words, a person who could obtain such an inheritance, either from parents or via a spouse, could afford to pay a staff of 25–30 domestic servants throughout his life. At the same time, the resources afforded by the top 1 percent of earned incomes (in jobs such as judge, prosecutor, or attorney, as in Vautrin’s lecture) were about ten times the resources of the lower class. This was not negligible, but it was clearly a much lower standard of living, especially since, as Vautrin observed, such jobs were not easy to obtain. It was not enough to do brilliantly in law school. Often one had to plot and scheme for many long years with no guarantee of success. Under such conditions, if the opportunity to lay hands on an inheritance in the top centile presented itself, it was surely better not to pass it up. At the very least, it was worth a moment’s reflection.

If we now do the same calculation for the generations born in 1910–1920, we find that they faced different life choices. The top 1 percent of inheritances
AFFORDED RESOURCES THAT WERE BARELY 5 TIMES THE LOWER CLASS STANDARD. THE BEST PAID 1 PERCENT OF JOBS STILL AFFORDED 10–12 TIMES THAT STANDARD (AS A CONSEQUENCE OF THE FACT THAT THE TOP CENTILE OF THE WAGE HIERARCHY WAS RELATIVELY STABLE AT ABOUT 6–7 PERCENT OF TOTAL WAGES OVER A LONG PERIOD). FOR THE FIRST TIME IN HISTORY, NO DOUBT, ONE COULD LIVE BETTER BY OBTAINING A JOB IN THE TOP CENTILE RATHER THAN AN INHERITANCE IN THE TOP CENTILE: STUDY, WORK, AND TALENT PAID BETTER THAN INHERITANCE.


CONCRETELY, THESE RESULTS ALSO INDICATE THAT THROUGHOUT THIS PERIOD, AND FOR ALL THE COHORTS BORN BETWEEN 1910 AND 1960, THE TOP CENTILE OF THE INCOME HIERARCHY CONSISTED LARGELY OF PEOPLE WHOSE PRIMARY SOURCE OF INCOME WAS WORK. THIS WAS A MAJOR CHANGE, NOT ONLY BECAUSE IT WAS A HISTORICAL FIRST

(IN FRANCE AND MOST LIKELY IN ALL OTHER EUROPEAN COUNTRIES) BUT ALSO BECAUSE THE TOP CENTILE IS AN EXTREMELY IMPORTANT GROUP IN EVERY SOCIETY. AS NOTED IN CHAPTER 7, THE TOP CENTILE IS A RELATIVELY BROAD ELITE THAT PLAYS A CENTRAL ROLE IN SHAPING THE ECONOMIC, POLITICAL, AND SYMBOLIC STRUCTURE OF SOCIETY.


The Basic Arithmetic of Rentiers and Managers

To recapitulate: a society in which income from inherited capital predominates over income from labor at the summit of the social hierarchy—that is, a society like those described by Balzac and Austen—two conditions must be satisfied. First, the capital stock and, within it, the share of inherited capital, must be large. Typically, the capital-income ratio must be on the order of 6 or 7, and most of the capital stock must consist of inherited capital. In such a society, inherited wealth can account for about a quarter of the average resources available to each cohort (or even as much as a third if one assumes a high degree of inequality in returns on capital). This was the case in the eighteenth and nineteenth centuries, until 1914. This first condition, which concerns the stock of inherited wealth, is once again close to being satisfied today.

The second condition is that inherited wealth must be extremely concentrated. If inherited wealth were distributed in the same way as income from labor (with identical levels for the top decile, top centile, etc., of the hierarchies of both inheritance and labor income), then Vautrin’s world could never exist: income from labor would always far outweigh income from inherited wealth (by a factor of at least three), and the top 1 percent of earned incomes would systematically and mechanically outweigh the top 1 percent of incomes from inherited capital.

In order for the concentration effect to dominate the volume effect, the top centile of the inheritance hierarchy must by itself claim the lion’s share of inherited wealth. This was indeed the case in the eighteenth and nineteenth centuries, when the top centile owned 50–60 percent of total wealth (or as much as 70 percent in Britain or Belle Époque Paris), which is nearly 10 times greater than the top centile’s share of earned income (about 6–7 percent, a figure that remained stable over a very long period of time). This 10:1 ratio between wealth and salary concentrations is enough to counterbalance the 3:1 volume ratio and explains why an inherited fortune in the top centile enabled a person to live practically 3 times better than an employment in the top centile in the patrimonial society of the nineteenth century (see Figure 11.10).

This basic arithmetic of rentiers and managers also helps us to understand why the top centiles of inherited wealth and earned income are almost balanced in France today: the concentration of wealth is about three times greater than the concentration of earned income (the top centile owns 20 percent of total wealth, while the top centile of earners claims 6–7 percent of total wages), so the concentration effect roughly balances the volume effect. We can also see why heirs were so clearly dominated by managers during the Trente Glorieuses (the 3:1 concentration effect was too small to balance the 10:1 mass effect). Apart from these situations, which are the result of extreme shocks and specific public policies (especially tax policies), however, the “natural” structure of inequality seems rather to favor a domination of rentiers over managers. In particular, when growth is low and the return on capital is distinctly greater than the growth rate, it is almost inevitable (at least in the most plausible dynamic models) that wealth will become so concentrated that top incomes from capital will predominate over top incomes from labor by a wide margin.

The Classic Patrimonial Society: The World of Balzac and Austen

Nineteenth-century novelists obviously did not use the same categories we do to describe the social structures of their time, but they depicted the same deep structures: those of a society in which a truly comfortable life required the possession of a large fortune. It is striking to see how similar the egalitarian structures, orders of magnitude, and amounts minutely specified by Balzac and Austen were on both sides of the English Channel, despite the differences in currency, literary style, and plot. As noted in Chapter 2, monetary markers were extremely stable in the inflation-free world described by both novelists, so that they were able to specify precisely how large an income (or fortune) one needed to rise above mediocrity and live with a minimum of elegance. For both writers, the material and psychological threshold was about 30 times the average income of the day. Below that level, a Balzacian or Austenian hero found it difficult to lead a dignified life. It was quite possible to cross that threshold if one was among the wealthiest 1 percent (and even better if one approached the top 0.5 or even 0.1 percent) of French or British society in the nineteenth century. This was a well-defined and fairly numerous social group—a minority, to be sure, but a large enough minority to define the structure of society and sustain a novelistic universe.

But it was totally out of reach for anyone content to practice a profession, no matter how well it paid: the best paid 1 percent of professions did not allow