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Thomas Piketty Is Right

Everything you need to know about 'Capital in the Twenty-First Century'

by Robert M. Solow | April 22, 2014

Capital in the Twenty-First Century by Thomas Piketty, translated by Arthur Goldhammer (Belknap Press)

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Income inequality in the United States and elsewhere has been worsening since the 1970s. The most striking aspect has been the widening gap between the rich and the rest. This ominous anti-democratic trend has finally found its way into public consciousness and political rhetoric. A rational and effective policy for dealing with it—if there is to be one—will have to rest on an understanding of the causes of increasing inequality. The discussion so far has turned up a number of causal factors: the erosion of the real minimum wage; the decay of labor unions and collective bargaining; globalization and intensified competition from low-wage workers in poor countries; technological changes and shifts in demand that eliminate mid-level jobs and leave the labor market polarized between the highly educated and skilled at the top and the mass of poorly educated and unskilled at the bottom.

Each of these candidate causes seems to capture a bit of the truth. But even taken together they do not seem to provide a thoroughly satisfactory picture. They have at least two deficiencies. First, they do not speak to the really dramatic issue: the tendency for the very top incomes—the “1 percent”—to pull away from the rest of society. Second, they seem a little adventitious, accidental; whereas a forty-year trend common to the advanced economies of the United States, Europe, and Japan would be more likely to rest on some deeper forces within modern industrial capitalism. Now along comes Thomas Piketty, a forty-two-year-old French economist, to fill those gaps and then some. I had a friend, a distinguished algebraist, whose preferred adjective of praise was “serious.” “Z is a serious mathematician,” he would say, or “Now that is a serious painting.” Well, this is a serious book.

It is also a long book: 577 pages of closely printed text and seventy-seven pages of notes. (I call down a painful pox on publishers who put the footnotes at the end of the book instead of the bottom of the page where they belong, thus making sure that readers like me will skip many of them.) There is also an extensive “technical appendix” available online that contains tables of data, mathematical arguments, references to the literature, and links to class notes for Piketty’s (evidently excellent) lecture course in Paris. The English translation by Arthur Goldhammer reads very well.

Piketty’s strategy is to start with a panoramic reading of the data across space and time, and then work out from there. He and a group of associates, most notably Emmanuel Saez, another young French economist, a professor at Berkeley, and Anthony B. Atkinson of Oxford, the pioneer and gray eminence of modern inequality studies, have labored hard to compile an enormous database that is still being extended and refined. It provides the empirical foundation for Piketty’s argument.

It all begins with the time path of total—private and public—wealth (or capital) in France, the United Kingdom, and the United States, going back to whenever data first become available and running up to the present. Germany, Japan, and Sweden, and less frequently other countries, are included in the database when satisfactory statistics exist. If you are wondering why a book about inequality should begin by measuring total wealth, just wait.

Since comparisons over vast stretches of time and space are the essence, there is a problem about finding comparable units in which to measure total wealth or capital in, say, France in 1850 as well as in the United States in 1950. Piketty solves this problem by dividing wealth measured in local currency of the time by national income, also measured in local currency of the time. The wealth-income ratio then has the dimension “years.” The comparison just mentioned says in fact that total wealth in France in 1850 amounted to about seven years worth of income, but only about four years for the United States in 1950. This visualization of national wealth or capital as relative to national income is basic to the whole enterprise. Reference to the capital-output or capital-income ratio is commonplace in economics. Get used to it.

There is a small ambiguity here. Piketty uses “wealth” and “capital” as interchangeable terms. We know how to calculate the wealth of a person or an institution: you add up the value of all its assets and subtract the total of debts. (The values are market prices or, in their absence, some approximation.) The result is net worth or wealth. In English at least, this is often called a person's or institution's capital. But "capital" has another, not quite equivalent, meaning: it is a "factor of production," an essential input into the production process, in the form of factories, machinery, computers, office buildings, or houses (that produce "housing services"). This meaning can diverge from "wealth." Trivially, there are assets that have value and are part of wealth but do not produce anything: works of art, hoards of precious metals, and so forth. (Paintings hanging in a living room could be said to produce "aesthetic services," but those are not generally counted in national income.) More significantly, stock market values, the financial counterpart of corporate productive capital, can fluctuate violently, more violently than national income. In a recession, the wealth-income ratio may fall noticeably, although the stock of productive capital, and even its expected future earning power, may have changed very little or not at all. But as long as we stick to longer-run trends, as Piketty generally does, this difficulty can safely be disregarded.

The data then exhibit a clear pattern. In France and Great Britain, national capital stood fairly steadily at about seven times national income from 1700 to 1910, then fell sharply from 1910 to 1950, presumably as a result of wars and depression, reaching a low of 2.5 in Britain and a bit less than 3 in France. The capital-income ratio then began to climb in both countries, and reached slightly more than 5 in Britain and slightly less than 6 in France by 2010. The trajectory in the United States was slightly different: it started at just above 3 in 1770, climbed to 5 in 1910, fell slightly in 1920, recovered to a high between 5 and 5.5 in 1930, fell to below 4 in 1950, and was back to 4.5 in 2010.

The wealth-income ratio in the United States has always been lower than in Europe. The main reason in the early years was that land values bulked less in the wide open spaces of North America. There was of course much more land, but it was very cheap. Into the twentieth century and onward, however, the lower capital-income ratio in the United States probably reflects the higher level of productivity: a given amount of capital could support a larger production of output than in Europe. It is no surprise that the two world wars caused much less destruction and dissipation of capital in the United States than in Britain and France. The important observation for Piketty's argument is that, in all three countries, and elsewhere as well, the wealth-income ratio has been increasing since 1950, and is almost back to nineteenth-century levels. He projects this increase to continue into the current century, with weighty consequences that will be discussed as we go on.

In fact he predicts, without much confidence and without kidding himself, that the world capital-income ratio will rise from just under 4.5 in 2010 to just over 6.5 by the end of this century. That would bring the whole world back to where a few rich countries of Europe were in the nineteenth century. Where does this guess come from? Or, more generally, what determines an economy's long-run capital-income ratio anyway? This is a question that has been studied by economists for some seventy-five years. They have converged on a standard answer that Piketty adopts as a long-run economic "law." In rough outline it goes like this.

Imagine an economy with a national income of 100, growing at 2 percent a year (perhaps with occasional hiccups, to be ignored). Suppose it regularly saves and invests (that is, adds to its capital) 10 percent of national income. So, in the year in which its income reaches 100 it adds 10 to its stock of capital. We want to know if the capital-income ratio can stay unchanged for next year, that is to say, can stabilize for the long run. For that to happen, the numerator of the capital-income ratio must grow at the same 2 percent rate as the denominator. We have already said that it grows by 10; for that to be 2 percent of capital, capital must have been 500, no more, no less. We have found a consistent story: this year national income is 100, capital is 500, and the ratio is 5. Next year national income is 102, capital is 510, the ratio is still 5, and this process can repeat itself automatically as long as the growth rate stays at 2 percent a year and the saving / investment rate is 10 percent of national income. Something more dramatic is true: if capital and labor combine to produce national output according to the good old law of diminishing returns, then wherever this economy starts, it will be driven by its own internal logic to this unique self-reproducing capital-income ratio.

Careful attention to this example will show that it amounts to a general statement: if the economy is growing at g percent per year, and if it saves s percent of its national income each year, the self-reproducing capital-income ratio is s / g (10 / 2 in the example). Piketty suggests that global growth of output will slow in the coming century from 3 percent to 1.5 percent annually. (This is the sum of the growth rates of population and productivity, both of which he expects to diminish.) He puts the world saving / investment rate at about 10 percent. So he expects the capital-income ratio to climb eventually to something near 7 (or 10 / 1.5). This is a big deal, as will emerge. He is quite aware that the underlying assumptions could turn out to be wrong; no one can see a century ahead. But it could plausibly go this way.

The key thing about wealth in a capitalist economy is that it reproduces itself and usually earns a positive net return. That is the next thing to be investigated. Piketty develops estimates of the "pure" rate of return (after minor adjustments) in Britain going back to 1770 and in France going back to 1820, but not for the United States. He concludes: "[T]he pure return on capital has oscillated around a central value of 4–5 percent a year, or more generally in an interval from 3–6 percent a year. There has been no pronounced long-term trend either upward or downward.... It is possible, however, that the pure return on capital has decreased slightly over the very long run." It would be interesting to have comparable figures for the United States.

Now if you multiply the rate of return on capital by the capital-income ratio, you get the share of capital in the national income. For example, if the rate of return is 5 percent a year and the stock of capital is six years worth of national income, income from capital will be 30 percent of national income, and so income from work will be the remaining 70 percent. At last, after all this preparation, we are beginning to talk about inequality, and in two distinct senses. First, we have arrived at the functional distribution of income—the split between income from work and income from wealth. Second, it is always the case that wealth is more highly concentrated among the rich than income from labor (although recent American history looks rather odd in this respect); and this being so, the larger the share of income from wealth, the more unequal the distribution of income among persons is likely to be. It is this inequality across persons that matters most for good or ill in a society.

This is often not well understood, and may be worth a brief digression. The labor share of national income is arithmetically the same thing as the real wage divided by the productivity of labor. Would you rather live in a society in which the real wage was rising rapidly but the labor share was falling (because productivity was increasing even faster), or one in which the real wage was stagnating, along with productivity, so the labor share was unchanging? The first is surely better on narrowly economic grounds: you eat your wage, not your share of national income. But there could be political and social advantages to the second option. If a small class of owners of wealth—and it is small—comes to collect a growing share of the national income, it is likely to dominate the society in other ways as well. This dichotomy need not arise, but it is good to be clear.

Suppose we accept Piketty's educated guess that the capital-income ratio will increase over the next century before stabilizing at a high value somewhere around 7. Does it follow that the capital share of income will also get bigger? Not necessarily: remember that we have to multiply the capital-income ratio by the rate of return, and that same law of diminishing returns suggests that the rate of return on capital will fall. As production becomes more and more capital-intensive, it gets harder and harder to find profitable uses for additional capital, or easy ways to substitute capital for labor. Whether the capital share falls or rises depends on whether the rate of return has to fall proportionally more or less than the capital-income ratio rises.

There has been a lot of research around this question within economics, but no definitely conclusive answer has emerged. This suggests that the ultimate effect on the capital share, whichever way it goes, will be small. Piketty opts for an increase in the capital share, and I am inclined to agree with him. Productivity growth has been running ahead of real wage growth in the American economy for the last few decades, with no sign of a reversal, so the capital share has risen and the labor share fallen. Perhaps the capital share will go from about 30 percent to about 35 percent, with whatever challenge to democratic culture and politics that entails.

There is a stronger implication of this line of argument, and with it we come to the heart of Piketty's case. So far as I know, no one before him has made this connection. Remember what has been established so far. Both history and theory suggest that there is a slow tendency in an industrial capitalist economy for the capital-income ratio to stabilize, and with it the rate of return on capital. This tendency can be disturbed by severe depressions, wars, and social and technological disruptions, but it reasserts itself in tranquil conditions. Over the long span of history surveyed by Piketty, the rate of return on capital is usually larger than the underlying rate of growth. The only substantial exceptional sub-period is between 1910 and 1950. Piketty ascribes this rarity to the disruption and high taxation caused by the two great wars and the depression that came between them.

There is no logical necessity for the rate of return to exceed the growth rate: a society or the individuals in it can decide to save and to invest so much that they (and the law of diminishing returns) drive the rate of return below the long-term growth rate, whatever that happens to be. It is known that this possible state of affairs is socially perverse in the sense that letting the stock of capital diminish until the rate of return falls back to equality with the growth rate would allow for a permanently higher level of consumption per person, and thus for a better social state. But there is no invisible hand to steer a market economy away from this perversity. Yet it has been avoided, probably because historical growth rates have been low and capital has been scarce. We can take it as normal that the rate of return on capital exceeds the underlying growth rate.

But now we can turn our attention to what is happening within the economy. Suppose it has reached a “steady state” when the capital-income ratio has stabilized. Those whose income comes entirely from work can expect their wages and incomes to be rising about as fast as productivity is increasing through technological progress. That is a little less than the overall growth rate, which also includes the rate of population increase. Now imagine someone whose income comes entirely from accumulated wealth. He or she earns r percent a year. (I am ignoring taxes, but not for long.) If she is very wealthy, she is likely to consume only a small fraction of her income. The rest is saved and accumulated, and her wealth will increase by almost r percent each year, and so will her income. If you leave $100 in a bank account paying 3 percent interest, your balance will increase by 3 percent each year.

This is Piketty’s main point, and his new and powerful contribution to an old topic: as long as the rate of return exceeds the rate of growth, the income and wealth of the rich will grow faster than the typical income from work. (There seems to be no offsetting tendency for the aggregate share of capital to shrink; the tendency may be slightly in the opposite direction.) This interpretation of the observed trend toward increasing inequality, and especially the phenomenon of the 1 percent, is not rooted in any failure of economic institutions; it rests primarily on the ability of the economy to absorb increasing amounts of capital without a substantial fall in the rate of return. This may be good news for the economy as a whole, but it is not good news for equity within the economy.

We need a name for this process for future reference. I will call it the “rich-get-richer dynamic.” The mechanism is a little more complicated than Piketty’s book lets on. There is some saving from labor income, and thus some accumulation of capital in the hands of wage and salary earners. The return on this wealth has to be taken into account. Still, given the small initial wealth and the relatively low saving rate below the top group, as well as the fact that small savings earn a relatively low rate of return, calculation shows that this mechanism is not capable of offsetting the forecast of widening inequality.

There is yet another, also rather dark, implication of this account of underlying trends. If already existing agglomerations of wealth tend to grow faster than incomes from work, it is likely that the role of inherited wealth in society will increase relative to that of recently earned and therefore more merit-based fortunes. Needless to say, the fact that the aggregate of wage incomes grows only at a relatively slow rate does not exclude the possibility that outstandingly successful innovators, managers, entrepreneurs, entertainers, and others can accumulate large amounts of wealth in a lifetime and join the ranks of the rentiers. But a slower rate of growth certainly makes such success stories less likely. There will be more to say about this. Yet the arithmetic suggests that the concentration of wealth and its ability to grow will favor an increasing weight of inheritance as compared with talent.

Piketty likes to describe the distribution of income and wealth concretely, and not in terms of summary statistics. He looks at the proportions of the total claimed by the top 1 percent (sometimes also the top tenth of the 1 percent), the top 10 percent, the next 40 percent, and the bottom half. (He labels the 40 percent between the top decile and the median as the “middle class.” There is an element of oxymoron in a middle class that lies entirely above the median; but I suppose this usage is no worse than the American habit of describing everyone between the clearly rich and the abjectly poor as being in the middle class.)

The data are complicated and not easily comparable across time and space, but here is the flavor of Piketty’s summary picture. Capital is indeed very unequally distributed. Currently in the United States, the top 10 percent own about 70 percent of all the capital, half of that belonging to the top 1 percent; the next 40 percent—who compose the “middle class”—own about a quarter of the total (much of that in the form of housing), and the remaining half of the population owns next to nothing, about 5 percent of total wealth. Even that amount of middle-class property ownership is a new phenomenon in history. The typical European country is a little more egalitarian: the top 1 percent own 25 percent of the total capital, and the middle class 35 percent. (A century ago the European middle class owned essentially no wealth at all.) If the ownership of wealth in fact becomes even more concentrated during the rest of the twenty-first century, the outlook is pretty bleak unless you have a taste for oligarchy.

Income from wealth is probably even more concentrated than wealth itself because, as Piketty notes, large blocks of wealth tend to earn a higher return than small ones. Some of this advantage comes from economies of scale, but more may come from the fact that very big investors have access to a wider range of investment opportunities than smaller investors. Income from work is naturally less concentrated than income from wealth. In Piketty’s stylized picture of the United States today, the top 1 percent earns about 12 percent of all labor income, the next 9 percent earn 23 percent, the middle class gets about 40 percent, and the bottom half about a quarter of income from work. Europe is not very different: the top 10 percent collect somewhat less and the other two groups a little more.

You get the picture: modern capitalism is an unequal society, and the rich-get-richer dynamic strongly suggest that it will get more so. But there is one more loose end to tie up, already hinted at, and it has to do with the advent of very high wage incomes. First, here are some facts about the composition of top incomes. About 60 percent of the income of the top 1 percent in the United States today is labor income. Only when you get to the top tenth of 1 percent does income from capital start to predominate. The income of the top hundredth of 1 percent is 70 percent from capital. The story for France is not very different, though the proportion of labor income is a bit higher at every level. Evidently there are some very high wage incomes, as if you didn’t know.

This is a fairly recent development. In the 1960s, the top 1 percent of wage earners collected a little more than 5 percent of all wage incomes. This fraction has risen pretty steadily until nowadays, when the top 1 percent of wage earners receive 10–12 percent of all wages. This time the story is rather different in France. There the share of total wages going to the top percentile was steady at 6 percent until very recently, when it climbed to 7 percent. The recent surge of extreme inequality at the top of the wage distribution may be primarily an American development. Piketty, who with Emmanuel Saez has made a careful study of high-income tax returns in the United States, attributes this to the rise of what he calls “supermanagers.” The very highest income class consists to a substantial extent of top executives of large corporations, with very rich compensation packages. (A disproportionate number of these, but by no means all of them, come from the financial services industry.) With or without stock options, these large pay packages get converted to wealth and future income from wealth. But the fact remains that much of the increased income (and wealth) inequality in the United States is driven by the rise of these supermanagers.

There is not much understanding of this phenomenon, and this book has little to add. Piketty is of course aware that executive pay at the very top is usually determined in a cozy way by boards of directors and compensation committees made up of people very like the executives they are paying. There is certainly an element of the Lake Wobegon illusion: every board wants to believe that “its” high executives are better than the median and deserve to be paid more than the median.

It is of course possible that "supermanagers" really are supermanagers, and their very high pay merely reflects their very large contributions to corporate profits. It is even possible that their increased dominance since the 1960s has an identifiable cause along that line. This explanation would be harder to maintain if the phenomenon turns out to be uniquely American. It does not occur in France or, on casual observation, in Germany or Japan. Can their top executives lack a certain gene? If so, it would be a fruitful field for transplants.

Another possibility, tempting but still rather vague, is that top management compensation, at least some of it, does not really belong in the category of labor income, but represents instead a sort of adjunct to capital, and should be treated in part as a way of sharing in income from capital. There is a puzzle here whose solution would shed some light on the recent increase in inequality at the top of the pyramid in the United States. The puzzle may not be soluble because the variety of circumstances and outcomes is just too large.

In any case, it is pretty clear that the class of supermanagers belongs socially and politically with the rentiers, not with the larger body of salaried and independent professionals and middle managers. So Piketty's foreboding vision of the twenty-first century remains to be dealt with: slower growth of population and productivity, a rate of return on capital distinctly higher than the growth rate, the wealth-income ratio rising back to nineteenth-century heights, probably a somewhat higher capital share in national income, an increasing dominance of inherited wealth over earned wealth, and a still wider gap between the top incomes and all the others. Maybe a little skepticism is in order. For instance, the historically fairly stable long-run rate of return has been the balanced outcome of a tension between diminishing returns and technological progress; perhaps a slower rate of growth in the future will pull the rate of return down drastically. Perhaps. But suppose that Piketty is on the whole right. What, if anything, is to be done?

Piketty's strong preference is for an annual progressive tax on wealth, worldwide if possible, to exclude flight to phony tax havens. He recognizes that a global tax is a hopeless goal, but he thinks that it is possible to enforce a regional wealth tax in an area the size of Europe or the United States. An example of the sort of rate schedule that he has in mind is 0 percent on fortunes below one million euros, 1 percent on fortunes between one and five million euros, and 2 percent above five million euros. (A euro is currently worth about $1.37.) Remember that this is an annual tax, not a onetime levy. He estimates that such a tax applied in the European Union would generate revenue equal to about 2 percent of GDP, to be used or distributed according to some agreed formula. He seems to prefer, as would I, a slightly more progressive rate schedule. Of course the administration of such a tax would require a high degree of transparency and complete reporting on the part of financial institutions and other corporations. The book discusses in some detail how this might work in the European context. As with any tax, there would no doubt be a continuing struggle to close loopholes and prevent evasion, but that is par for the course.

Annual revenue of 2 percent of GDP is neither trivial nor enormous. But revenue is not the central purpose of Piketty's proposal. Its point is that it is the difference between the growth rate and the after-tax return on capital that figures in the rich-get-richer dynamic of increasing inequality. A tax on capital with a rate structure like the one suggested would diminish the gap between the rate of return and the growth rate by perhaps 1.5 percent and would weaken that mechanism perceptibly.

This proposal makes technical sense because it is a natural antidote to the dynamics of inequality that he has uncovered. Keep in mind that the rich-get-richer process is a property of the system as it operates on already accumulated wealth. It does not work through individual incentives to innovate or even to save. Blunting it would not necessarily blunt them. Of course a lower after-tax return on capital might make the accumulation of large fortunes somewhat less attractive, though even that is not at all clear. In any case, it would be a tolerable consequence.

Piketty writes as if a tax on wealth might sometime soon have political viability in Europe, where there is already some experience with capital levies. I have no opinion about that. On this side of the Atlantic, there would seem to be no serious prospect of such an outcome. We are politically unable to preserve even an estate tax with real bite. If we could, that would be a reasonable place to start, not to mention a more steeply progressive income tax that did not favor income from capital as the current system does. But the built-in tendency for the top to outpace everyone else will not yield to minor patches. Wouldn't it be interesting if the United States were to become the land of the free, the home of the brave, and the last refuge of increasing inequality at the top (and perhaps also at the bottom)? Would that work for you?

Robert M. Solow is Institute Professor of Economics emeritus at MIT. He won the Nobel Prize in Economics in 1987.

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