

FINANCE AND CAPITAL IN THE 21ST CENTURY

Robert C. Jones

In Thomas Piketty's controversial, ambitious, but ultimately flawed book, *Capital in the Twenty-First Century*, he claims that: (1) the return on capital (r) has exceeded the growth rate of the economy as a whole (g); (2) this relationship ($r > g$) has produced ever-greater concentrations of wealth and income; and (3) raising taxes, especially on capital, is the best way to reduce these inequalities. He concludes with an impassioned plea for economics to aspire to a higher "political, normative and moral purpose," while lamenting modern efforts to treat it as a science.

Because finance is essentially the study of capital and capital markets, this article evaluates Piketty's claims from the perspective of financial theory, using the scientific method. Is Piketty's theory of capital internally consistent? Does the data support his hypotheses? What are the policy implications? To briefly preview, I find that his theory of capital confuses cause and effect, the data do not support his hypotheses, and his policy prescriptions would likely prove counter-productive.

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Why Is $r > g$?

In financial theory, the internal growth rate¹ (g) is a function of the return on capital (r) and the reinvestment (or savings) rate (s):

$$(1) \quad g = r * s$$

where $s = (1 - t) * (1 - c)$.

The reinvestment rate (s) is the percent of income that gets saved and reinvested—that is, what’s left after taxes (t) and consumption (c). This reinvested income earns the marginal return on capital (r), resulting in additional income, or income growth. Equation 1 is an accounting relationship that holds for a company, an investment portfolio, or the economy as a whole.²

Taxes are clearly a net loss for individuals, companies, and (taxable) investment portfolios, reducing their reinvestment and growth rates dollar for dollar. Conversely, for the economy as a whole, taxes represent a transfer of wealth within the economy: If they are reinvested at marginal returns above those available to the original owners—a really BIG if—they may even contribute to overall economic growth. If, however, they are invested poorly, or consumed, the economy will have less capital accumulation and slower economic growth—but, perhaps, more consumption spending and higher standards of living for the recipients.

Clearly, however, since no company, portfolio, or economy reinvests all of its income every period, g will necessarily be less than r , often quite substantially (ignoring random changes in price-to-book ratios). This is not unusual, problematic or, as Piketty claims, a “fundamental force of divergence” or “the fatal flaw of capitalism.” Instead, the math dictates that the return on capital is and always will be greater than the economic growth rate (except for short-term variations caused by changes in the price-to-book ratio). It’s not the return on capital—but its growth and use—that matters.

¹Growth can also come from external sources, such as outside capital and immigration.

²Technically, Equation 1 applies to internal growth in the book value of capital. To the extent that market-to-book ratios vary randomly, with no secular trend, this has no impact on equilibrium analysis. That is, g and r may not conform to this relationship in any given period, due to fluctuations in the price-to-book ratio, but will on average over time.

Note that Equation 1 is identical to Piketty's "second fundamental law of capitalism": $\beta = s/g$. In Piketty's terminology, β is the capital/income ratio, the primary metric he uses to assess inequality (a high ratio implies more inequality). But the inverse of the capital/income ratio is simply the return on capital ($r = \text{income/capital}$), or the amount of income an economy generates from its capital base. Since Piketty's savings rate (s) is equivalent to the reinvestment rate, or what's left after taxes and consumption, Piketty's second fundamental law is a simple rearrangement of Equation 1.³

Piketty's has the algebra right, but the dependent variable wrong: he confuses cause and effect. In Piketty's second fundamental law, an economy's savings rate (s) and growth rate (g) are independent variables that jointly determine its return on capital (since $\beta = 1/r$, the fundamental law also says that $r = g/s$). In Equation 1, the return on capital (r) and reinvestment rate (s) are the independent variables that jointly determine an economy's internal growth rate (g). Equation 1 is more consistent with accounting theory and economic logic: An economy's return on capital (r) reflects its technology—how much income it can generate from its capital base—which logically determines its growth rate, not vice versa.

Piketty also confuses cause and effect when he speaks of the return on capital (r) and growth rate (g) as if they were independent, exogenous variables that together create inequality (via $r > g$). In accounting theory, g is a function of r and the reinvestment rate (s , which itself is a function of r). Thus, contrary to Piketty's assertion that $r > g$ is a "contingent historical proposition," in financial theory, it's an accounting necessity.

Testing Piketty's Hypotheses

Piketty offers two main hypotheses, but never formally states or tests either, so I will do so here.

Piketty's First Hypothesis

Piketty's first major hypothesis is that, due to $r > g$, capitalism inevitably produces ever-more concentrated pools of inherited

³The second fundamental law is $\beta = s/g$. Since $\beta = 1/r$, this means $1/r = s/g$. Rearranging leads to $g = r*s$, or Equation 1. Note that, as a result, Piketty's fundamental law also applies to the book (or normalized) return on capital, and therefore has the same caveats mentioned in footnote 1.

wealth. He believes that the United States may be entering an era of “patrimonial capitalism” with rigid class structures and plutocratic government that “looks like old Europe prior to 1914.” He fears we are headed toward a Dickensian future in which “a small group of wealthy but untalented children controls vast segments of the US economy and penniless talented children simply can’t compete.”⁴

Piketty’s fears are misguided for two reasons: (1) He mistakes the return on capital (r) for the growth of capital (g), as discussed above; and (2) he fails to account for differential returns (r) and reinvestment rates (s) across generations and types of investors. The returns on large pools of *private* capital are often taxed three (or more) times: at the corporate, personal, and estate levels. Across generations, they are also “consumed” through poor stewardship, fragmented inheritances, and charitable giving. Accordingly, per Equation 1, the growth of private inherited capital will likely be slow or negative across generations.

The data confirm that inherited wealth is a relatively small percentage of total wealth, and is declining in importance. Wolff and Gittleman (2011) find that inherited wealth declined from 29 percent to 19 percent of total U.S. capital between 1989 and 2007. Looking at just the top 1 percent, inherited wealth fell from 27 percent to 15 percent of capital over the same period. (This may reflect the accelerating pace of “creative destruction,” as new capital makes old capital obsolete.) In addition, since inherited wealth is a greater percentage of total wealth outside of the top 1 percent, it actually *reduces* inequality. There is no reason or evidence to suggest that private, inherited pools of capital will grow faster than national income or wealth, even if $r > g$ (as it must be in equilibrium).⁵

Conversely, the last half-century has seen the emergence of a new class of dominant investors: public institutions. These include sovereign wealth funds; private, public, and union pension funds; and foundations and endowments. The largest of these institutions dwarf the largest private capital pools: The wealthiest individual in

⁴Piketty usually refers to Balzac and Austen to support his economic theories (he’s clearly not a quant), but “Dickensian” conveys the point better than “Balzacian” or “Austenian.”

⁵See Arnott, Bernstein, and Lu (2015) for a more thorough discussion of “The Myth of Dynastic Wealth.” Dynastic wealth is not growing faster than the general economy; in fact it is declining (dissipating into the economy via taxes, spending, charitable giving, etc.) at a rate of 3.1 percent per year.

the world is Bill Gates with roughly \$76 billion in net worth as of 2013 (most of which he has pledged to charity), while the largest pension fund, the Government Pension Investment Fund of Japan, is \$1.3 trillion (17 times larger). In addition, there are 35 pension funds and 15 sovereign wealth funds that control more capital than Bill Gates. *If capital is becoming increasingly concentrated, it's doing so in the hands of public institutions.*

Importantly, many of these institutional pools are semi-permanent (i.e., they don't naturally dissipate over time), tax exempt, well diversified, and managed by professional fiduciaries for the benefit of workers, charities, universities, governments, and the general public. Given their lower levels of consumption (c) and taxes (t), plus their professional stewardship (higher r), these institutional pools are likely to continue to grow much faster than private pools over the decades ahead. It's no accident that the Carnegie, Ford, and Rockefeller foundations live on long after the personal fortunes of their creators.

Rather than producing an ever-more concentrated cadre of rentiers and wealthy plutocrats, then, Western capitalism is producing ever-greater concentrations of wealth in pools that are managed by professional investors for the benefit of the public at large. It's these technocrats, not Piketty's plutocrats, who finance our economy, allocate capital, pick winners and losers, and ultimately fund the research, innovations, businesses, and entrepreneurs who drive economic growth. I think it's far more likely that this trend will continue to shape the face of capital in the 21st century, not the 19th century portrait of plutocrats painted by Piketty (say that five times fast).

Piketty's Second Hypothesis

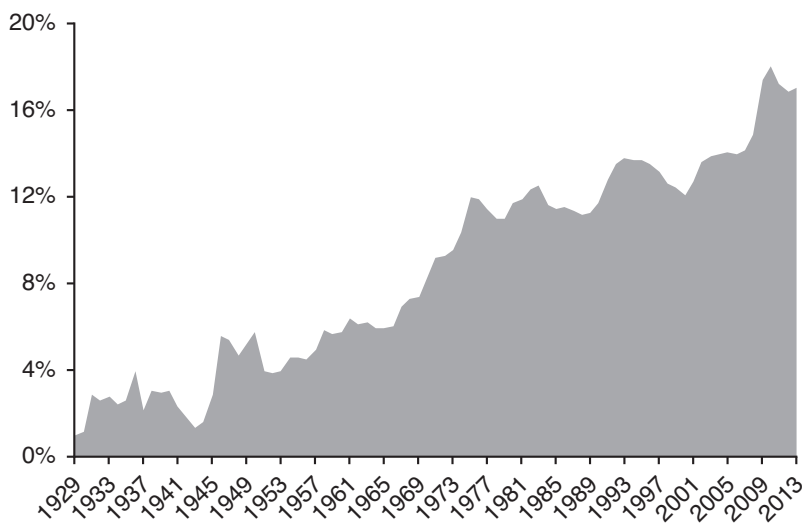
Piketty's second troubling hypothesis is that the income and wealth distributions have grown more unequal over time and are now at "dangerous" levels. He further claims that this represents a clear market failure that requires a forceful policy intervention (seizing private capital). He bases his conclusions on trends in the capital/income ratio (β), which has grown to historically high levels in recent years. But as we've already seen, a high capital/income ratio equates to a low return on capital ($r = \text{income/capital}$)—often because valuations are high following a period of strong returns—which will reduce capital growth going forward (i.e., it's self-correcting, per Equation 1).

What does the evidence say? Is inequality dangerous and growing worse as Piketty claims? Piketty's data show inequality is

high and rising for both wealth and income, but his data are incomplete and misleading. In particular, his income data exclude the impact of taxes, government transfer payments, and corporate fringe benefits (like health insurance and pension contributions), while his wealth data exclude Social Security, Medicare, Medicaid, and pension funds. That is, *the measures he uses to assess inequality exclude the impact of existing programs to address inequality*. As such, Piketty's data and analyses are misleading.

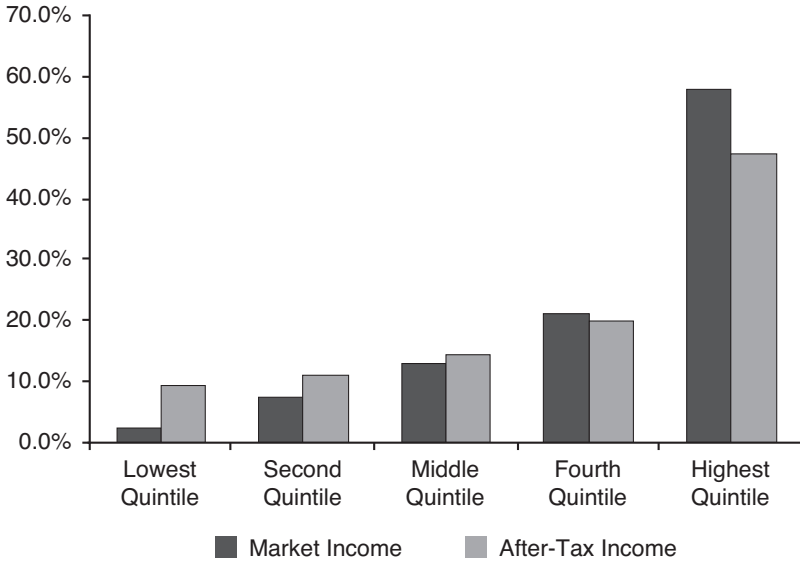
A recent CBO study (2013) looks at the U.S. income distribution from 1979 to 2010, after accounting for taxes, transfer payments, and non-cash fringe benefits—a measure the CBO calls simply “after-tax income.” Since government transfer payments have grown significantly over time, and now exceed 15 percent of total income (see Figure 1), excluding them can seriously distort measure of inequality. Using after-tax disposable income, as opposed to market income, shows that inequality is far less extreme (see Figure 2) and has actually declined this century. Burtless (2014) shows that, from 2000 to

FIGURE 1
GOVERNMENT SOCIAL BENEFITS AS A PERCENTAGE OF
TOTAL U.S. PERSONAL INCOME, 1929–2013



SOURCES: U.S. Dept. of Commerce, National Income and Product Accounts; Burtless (2014).

FIGURE 2
 MARKET INCOME AND AFTER-TAX INCOME SHARE
 (PERCENT), BY INCOME GROUP, 2010



SOURCE: Congressional Budget Office.

2010, the bottom quintile of the income distribution saw after-tax disposable incomes *increase* by 20 percent; the middle quintile was up 12 percent; while the richest 1 percent saw disposable incomes *decline* by 4 percent.

Market income can also be misleading when tax rates change. When rates are high—such as in the postwar years that Piketty sees as the golden age of income equality—high earners are more likely to hide, delay, or extend income recognition, making their market incomes appear lower than they actually are. Conversely, when tax rates decline, like they’ve done a few times since 1982, high earners will be more likely to report income in a timely manner. (Similar measurement issues exist on the low end of the distribution when benefits are means tested.) Thus, the income distribution can *appear* more equal in the earlier period, even if the actual distribution changes little, or indeed grows more equal over time. Thus, Piketty’s data can be an unreliable gauge of income equality whenever tax rates change—as they’ve done repeatedly over the period that Piketty studies.

In addition, Piketty's data use floating cohorts, comparing today's winners and losers to those in prior years. If we look at actual individuals (fixed cohorts), we find considerably more convergence over time: yesterday's losers often become today's winners and vice versa. For instance, Rank and Hirschl (2001) found that, between ages 25 and 60, 12 percent of Americans had spent at least one year in the top 1 percent; 56 percent had spent at least one year in the top 10 percent; 73 percent found themselves in the top quintile for at least a year; and 54 percent of individuals had spent at least one year below the poverty line (usually shortly after they entered the labor force). Thus, in sharp contrast to Piketty's largely irrelevant analysis of pre-tax market incomes for floating cohorts, when we use after-tax disposable income for fixed cohorts, *income inequality declined substantially between 2000 and 2010*.⁶

Taxes and transfer payments also reduce economic beta (or risk) for the poorest Americans. For example, during the Great Recession⁷ (2007–09), the lowest income quintile had flat disposable incomes, the middle quintile was down 1.4 percent, and the top 1 percent saw their incomes decline by more than 30 percent (and far more using fixed cohorts). The data also show that income for the highest earners is much more volatile than incomes for the middle or bottom quintiles. Over the longer term (1979–2010), after-tax income levels for the ex post winners (the top 1 percent in 2010) have indeed grown much faster than for other groups. From the perspective of financial economics, however, this likely reflects the ex post winners taking on much greater ex ante risk—that is, the winners earned a hefty risk premium, while those who tried and failed (a much larger group) ended up in lower income categories. These large rewards for the winners encourage the efforts of winners and losers alike.

Piketty's U.S. wealth dataset is also misleading, primarily because it excludes pension assets and the present value of expected Social Security, Medicaid, and Medicare payments.⁸ Since these public savings vehicles (or PSVs) represent the lion's share of retirement and

⁶I haven't seen any studies using data after 2010, but I suspect the upper income groups saw faster growth as a result of their higher beta to the economy.

⁷This is an oxymoron if ever there was one.

⁸Reynolds (2014) also finds that Piketty's wealth data suffer from a variety of methodological flaws that render them "worthless."

health savings for most people, excluding them can seriously distort the measured wealth distribution. Accurately accounting for PSVs would significantly enhance the measured wealth of the middle and lowest wealth quintiles, and significantly reduce measured inequality. Society developed these programs, and their payroll taxes, to force people to save for health care and retirement.⁹ To exclude them when calculating the relative wealth of different groups is either extremely sloppy or intentionally deceptive.

Edward Wolff (2007) estimates the U.S. wealth distribution after accounting for pensions and Social Security, but not Medicare and Medicaid. He finds that the Gini coefficient for U.S. wealth drops 20 percent as a result (from 0.83 to 0.66).¹⁰ Accounting for Medicare and Medicaid assets, plus foundations and endowments (which generally help the needy), would likely reduce the Gini coefficient considerably further. Thus, excluding PSVs, as Piketty does, grossly overstates the degree of U.S. wealth inequality. In particular, private wealth has grown more unequal *precisely because* governments and employers are now the primary source of retirement and health savings for most Americans.

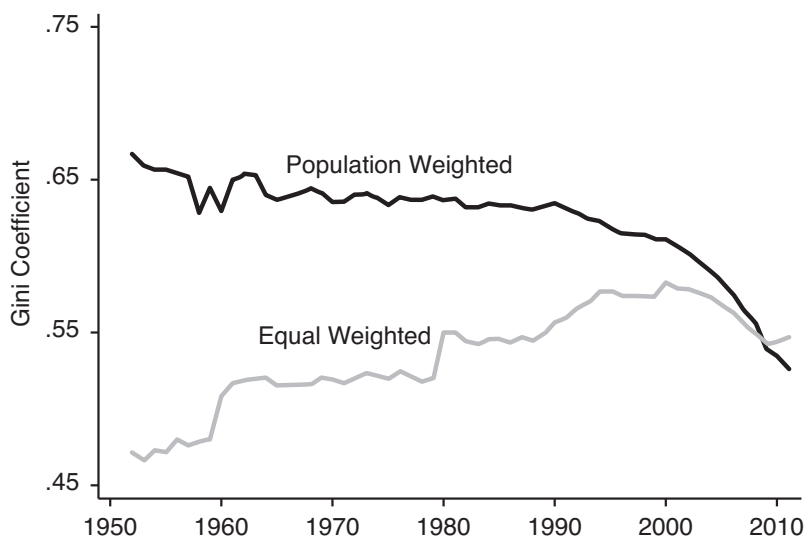
Finally, the global evidence also shows declining inequality, especially since the fall of the Berlin Wall in 1989, when many of the world's developing nations began to embrace free trade, private property, and market economies. Because three of these nations are among the most populous on earth (China, India, and Indonesia), the population-weighted global Gini index has fallen precipitously since 1989. Per Milanovic (2012), and reproduced in Figure 3, the population-weighted global Gini index drifted modestly but consistently lower between 1950 and 1989, falling from 0.67 to 0.64. After 1989, however, it fell much more quickly, to 0.52 by 2010. Inequality between nations is clearly in rapid decline (at least for large nations with market economies).

Milanovic also finds that roughly 60 percent of the variation in individual incomes globally is explained by where you live (location),

⁹It probably seemed like a good idea at the time, but since the government never invested the proceeds, these PSVs are grossly underfunded. Most people would likely be better off if they had saved the same amounts and invested on their own.

¹⁰The Gini coefficient measures the relative equality of a distribution, with 0.0 representing perfect equality and 1.0 representing complete inequality (perfect concentration).

FIGURE 3
GLOBAL GINI INDEX, 1950–2010



SOURCE: Milanovic (2012).

which is obviously greater than the percent explained by your social class, education, intelligence, effort, gender, and parental circumstances combined. This means that national institutions are the primary determinants of relative income. In particular, the correlations between the Fraser Index of Economic Freedom and per capita income and wealth are high and statistically significant (see Gwartney, Lawson, and Hall 2014). Thus, the decline in global inequality is largely due to the expansion of free trade in the developing world.

Policy Implications

Piketty uses faulty data and bad economics to argue that inequality is reaching dangerous levels, and that we need a global wealth tax to fix the problem. But Piketty's medicine could easily prove worse than the imagined disease. To see why, it's time to introduce a second equation from Finance 101:

$$(2) \quad r = rfr + \sum(rp).$$

Here r is the required return on capital (also called the cost of capital), which is a function of the risk-free rate (r_{fr}) and various risk premiums (rp). The risk-free rate is the return that investors require to invest in riskless securities rather than consume or distribute capital. The risk premiums are the additional returns that investors require for accepting various non-diversifiable risks (such as those due to credit, duration, markets, currencies, or investment styles.)

Capital markets drive the return on capital toward the cost of capital, primarily through adjustments in the price-to-book ratio. If capital returns exceed the cost of capital, the price-to-book ratio will increase (prices will be bid up) to bring the return on capital back down to the cost of capital, and vice versa. Piketty's concern about the high capital/income ratio (β) amounts to concern about the low cost of capital ($r = \text{income/capital}$). But why is that a problem? A low cost of capital means there will be more capital investment, greater capital accumulation, more new businesses, and ultimately faster growth. It also means lower returns for passive rentiers—who pay a higher premium to book and thereby earn lower yields—and higher returns for the original innovators and entrepreneurs—who took greater risks (since most fail) and thereby earned the premium to book. These are hardly dangerous problems that require an invasive policy response.

Piketty's main policy proposal is for an annual global wealth tax that confiscates 2 percent to 5 percent of assets annually from the largest investment pools (presumably excluding PSVs). But per Equation 2, such a wealth tax would increase the cost of capital by roughly 2 percent to 5 percent, as consumption would become more attractive relative to saving, leading to a higher risk-free rate (r_{fr}). A higher cost of capital means higher borrowing costs, less investing, slower capital accumulation, fewer new ventures, less risk-taking, slower growth, and more consumption, especially by the wealthy. It could easily produce the type of permanent slow-growth economy, with vastly unequal consumption, that Piketty fears.

Are there ways to promote greater equality that don't adversely impact the economy? Financial theory offers one obvious approach: risk sharing. If wages were more sensitive (had higher beta) to company results, they'd be more volatile, but also have higher expected values. Profits would be proportionately less volatile, with lower expected values. It is no accident that employees who receive more of their pay in the form of bonuses, profit shares, options, and other

risky contracts usually earn considerably more than those with guaranteed contracts. Risk sharing would also better align the interests of owners, managers, and employees for the benefit of all.

Another simple way for the general public to increase its beta to the economy, and thereby its expected share of national wealth, is to invest some of the Social Security and Medicare trust funds in equities and other risky assets. These assets are society's nest egg, accumulated through forced tax-and-savings plans that were first imposed in the 1930s. If the government had invested those assets from day one, the trust fund would now own roughly 15 percent to 20 percent of the nation's productive capital.¹¹ But it's never too late: Social Security and Medicare are long-term, growing liabilities that should be funded with long-term, growing assets. By also converting to a defined contribution system, we could largely eliminate cross-generational subsidies.

Another way to promote equality is to eliminate tax subsidies and preferences by: (1) simplifying or eliminating the corporate income tax, with all of its special preferences and subsidies,¹² and (2) simplifying the individual tax schedule by eliminating deductions and aligning tax rates on capital gains and ordinary income. This would put capital income (profits) and labor income (wages) on the same tax footing, put consumption and investment on a closer footing, improve aggregate utility, and reduce rents on K Street. (Lobbyists would still flock to Washington to influence regulations that affect them, but not to rig the tax code in their favor.) It would also reduce the distorting effect of taxes on economic decisions, and eliminate much of the huge, and hugely unproductive, tax-avoidance industry.

Note that aligning tax rates is fundamentally different from Piketty's suggestion to raise taxes on capital. The goal of tax rate equalization is to eliminate tax subsidies so economic decisions will

¹¹These calculations assume that all of the Social Security Trust Fund's annual cash flows were invested in a 60/40 (indexed) U.S. bond-stock portfolio. With these assumptions, the value of the fund would be about \$10 trillion–\$12 trillion as of the end of 2013 (depending on whether any of the equities were invested in small-cap stocks). Its actual value at year-end 2013 was about \$2 trillion (which reflects investing solely in Treasury bonds). As of year-end 2013, the value of all U.S. assets (excluding housing) was \$66 trillion. Sources: official Social Security website; FRED Federal Reserve Bank of St Louis; U.S. Treasury; Schiller (2000); *Ibbotson S&P 500 Classic Yearbook*.

¹²Sheila Blair, head of the FDIC from 2006 to 2011, made this same recommendation in a recent article in the *Wall Street Journal* (Blair 2014).

reflect individual preferences and scarcity (i.e., supply and demand), not state coercion. This will result in greater utility and wealth for all. (The absolute level of tax rates is a separate consideration.)

To promote global equality, we should promote economic freedom. As Gwartney, Lawson, and Hall (2014) have shown, freer economies have much higher income levels for the poorest 10 percent. Although the poor's *share* of income isn't much different than in other nations, this measure of income excludes fringe benefits, taxes, and transfer payments. Since these tend to be higher in wealthier (freer) economies, adding them would significantly increase the share of *disposable* income accruing to the poorest 10 percent. In addition, the many social benefits of economic freedom—longer life expectancy, lower infant mortality, stronger individual (especially women's) rights, lower birthrates, etc.—are generally shared broadly across society. The evidence is compelling: expanding economic freedom is the best way to reduce global poverty and inequality.

Finally, there is the important question of whether promoting equality is a valid public policy goal. Mayor (2015) argues that the economy is not a zero-sum game (as have most economists), and that the wealthy end up creating far more wealth for society as a whole than they keep for themselves (assuming trade is voluntary). Hence, the richer the winners are, the better off we all are. In addition, people pursue happiness in a variety of ways: Some pursue greater income or wealth, but many others pursue power, fame, artistic expression, scientific achievement, family time, athletic prowess, physical fitness, spiritual growth, or recreation (to name but a few). Should we redistribute all of these? Why is income different? Should we promote equality along all of these dimensions regardless of personal preference? People will be happier when they can make their own choices and pursue their own dreams. When it comes to happiness, choice matters more than wealth—which may explain why the American public continues to rate inequality as a minor concern despite the philippics of Piketty and a plethora of political pundits.¹³

Nor is redistribution necessarily good (or bad) for the economy as a whole. When you take from the rich to give to the poor, you essentially convert savings to consumption.¹⁴ The Keynesian view is that

¹³See Quartz and Asp (2015).

¹⁴Consumption taxes are designed to neutralize this effect.

more consumption promotes growth by increasing trade. This is axiomatic (increased trade = growth). But demand-driven growth has limits: Eventually resource constraints limit consumption, leading to inflation. To create real growth, an economy needs to expand resources, which requires capital, which requires forgoing consumption for the sake of investment. So is redistribution good or bad for the economy? It *might* be good (or not) if the economy is operating below capacity and capital is abundant. If capital is scarce, and technology is advancing rapidly, the economy will often be better off if people save more and consume less. In any case, it's probably better to let private individuals (the market) decide how much they want to save or consume; the political process does not lend itself to smart or timely economic decisions.

Capital in the 21st Century

Piketty offers up a grim vision for the future: a modern Jane Austen novel, with slow growth, an oligarchy of wealth, and rigid class structures. I've argued that his forecasts are based on misleading data and faulty analyses. But if Piketty is wrong, what should we expect going forward? Where *is* capital headed in the 21st century?

My crystal ball is as cloudy as Piketty's, but the images I see in the fog are a lot less gloomy.¹⁵ A continuation of recent trends seems most likely: Inheritances will continue to fall as a percent of national wealth, while public institutions (PSVs) will become ever-more dominant. Directly inherited wealth will continue to fragment through taxes, charitable giving, consumption, bad stewardship, and split inheritances. Public institutions will continue to grow larger due to their professional management, semi-permanent status, and tax preferences. These PSVs will become the largest owners of virtually all mature companies (as they often are now), and their assets will pass from generation to generation, anonymously and collectively.

In this way, some of Marx's and Piketty's forecasts may actually come to pass—just not in the way either expected: Through PSVs, the public will indeed come to own the means of production (per Marx), and these *collectively* inherited assets will indeed “control vast

¹⁵Some fascinating books covering the optimistic case include Ridley (2010), Diamandis and Kotler (2012), Brynjolfsson and McAfee (2014), and Bryce (2014).

segments of the U.S. economy” (per Piketty). But, contrary to Piketty, these assets (PSVs) will continue to be managed by professional fiduciaries for the benefit of the general public, not by talentless children to satisfy their plutocratic pleasures. (It also looks like Marx was probably wrong about the state “withering away,” but who knows? A lot can happen in the next 100 years.)

New wealth (creative destruction) will continue to soar due to opportunities created by the accelerating advances in human knowledge, technology, energy, and information processing. Perhaps most bullish: billions of the world’s poor will emerge from poverty to enter the global network, bringing a plethora of new talents, skills, and ideas with them. Simple statistics would argue that there should be a few “world changers” among them—say, a Jobs for health care, a Ghandi for the Middle East, or an Einstein for artificial intelligence. First-generation fortunes will remain concentrated in first-generation companies, even if they are occasionally ones that are as crucial to the economy as Microsoft or GAFA (French for Google, Apple, Facebook, and Amazon). This new wealth will indeed be concentrated in the hands of the innovators and early investors who create it, but most of them will stay out of public life, the occasional Soros or Koch notwithstanding.

Depending on estate tax rates, charitable inclinations, numbers of dependents, and quality of stewardship, the second and third generations of new wealth will often lead lives of unearned leisure, but the total numbers will remain relatively small, with rapidly declining influence over a few generations. Neither the wealth creators nor their descendants will represent much in the way of plutocratic risk. If necessary, however, society can and will adopt steeper estate tax rates to limit any plutocratic propensity that might arise.¹⁶

Instead, efforts to influence legislation will continue to come primarily from businesses, labor unions, consumer groups, and other special interests (like the NRA or Sierra Club). These groups represent the interests of various constituents who are significantly affected by government actions. They do not represent the interests of wealthy plutocrats in any direct fashion. In any case, the best way to reduce plutocratic risk is to reduce the reach of government; the

¹⁶If so, it should proceed cautiously and incrementally: per evolutionary theory, providing for one’s direct descendants is among the most powerful of all human motivations.

more the state determines success in business, or in life, the more resources people will devote to influencing government policies. (Unsurprisingly, most politicians like it that way; they would prefer to extend the reach of government.)

There will continue to be large disparities in market incomes because there will continue to be large disparities in how the market values different skills. As the developing world embraces universal education, private property, and free markets, both demand and supply will grow for all types of different skill sets. New technologies promise to do the same. In fact, there are so many amazing advances going on in so many diverse areas—materials, biotech, nanotech, energy, medicine, robotics, transportation, and artificial intelligence—that the Internet revolution may someday seem tame by comparison. The highest-paid skills will continue to be those that are hardest to obtain and most in demand. Although the distribution of market incomes will remain top heavy, society will continue to use tax policy, PSVs, and transfer payments to help the ever-smaller pool of those in need.

Globally, the success of private property and free markets will become increasingly obvious to people everywhere. Enlightened despots (e.g., China) will promote free markets to remain relevant on the global stage; endangered despots (e.g., North Korea) will try to hang on, but their citizens will nonetheless gain access to the global network and demand change. As economic freedom expands across the developing world, today's poor nations will improve along all of the dimensions noted in the *Economic Freedom of the World Reports*. Birthrates will decline due to lower infant mortality rates and expanding women's rights (two features of freer economies). By the end of the 21st century, public institutions (PSVs) will own much of our increasingly intelligent capital base, and their yields will be able to cover most of our basic needs—including, perhaps, managing capital—freeing ever-more time for humanity to pursue its passions. By then, we will all be rentiers, at least for our basic needs. We stand at the dawn of a new era.

I said it was optimistic, but who could have foreseen the world of 2000 back in 1915? And there are certainly some disaster scenarios that could emerge (most of them involving excessive government debt). My point isn't that I'm right and Piketty's wrong—although I believe I'm less wrong—but rather that the future is uncertain. If we impose grand, invasive policies using flawed analyses of faulty data,

we will likely get bad results. In fact, even if we base policies on sound analyses of reliable data, we may still get bad results: market reactions are uncertain and often nonlinear. Markets and economies adapt quickly to any new environment, often in unintended ways, as agents continue to pursue their individual and varied objectives. The state should be slow to enact large-scale market interventions unless it can convincingly demonstrate that there has been a market failure,¹⁷ and that potential solutions have been thoroughly tested on smaller samples (i.e., use the scientific method, with market efficiency as the null hypothesis).

Conclusion

Piketty's economic analysis is faulty because he mistakes the return on capital for the growth of capital. Across generations, institutional capital is taxed less (lower t), consumed less (lower c), and probably invested better (higher r) than private capital. Per Equation 1, it should continue to grow faster as well.

Piketty's inequality data is misleading; it ignores the impact of existing programs to address inequality. The distribution of *disposable* income (after taxes, transfer payments, and fringe benefits) is more equal, and has *not* become more skewed in recent years. The same holds for the distribution of wealth after adjusting for pensions and public savings vehicles (PSVs). Global inequality is also declining rapidly as developing nations pursue market economies.

Piketty's global wealth tax would likely prove counterproductive. It would raise the cost of capital, leading to less investment and, quite possibly, the type of slow-growth economy with vastly unequal consumption that Piketty fears. Nor is it clear that promoting equality is a valid goal for public policy. A more effective way to promote equality would harness market forces: risk sharing, eliminating tax preferences, and economic freedom. Incomes would be more equal if wages were more sensitive to company results, while wealth would be more equal if PSVs had a higher beta to the market. Eliminating tax preferences should also reduce inequality. Finally, there is compelling evidence

¹⁷Many market "failures" are really just market outcomes that someone doesn't like (e.g., CEO pay). Others are really government, social, or cultural failures. For instance, reduced social mobility is largely a failure of public education, or the result of cultural and social barriers, not a market failure per se.

that, in freer economies, the poor have higher incomes *and* higher income shares (and enjoy numerous other social benefits as well).

Piketty's predictions for slow growth and ever-greater inequality are speculative; there is also a compelling case for faster growth and declining inequality over the century ahead. Given this uncertainty, it makes no sense to enact invasive policies (asset seizure) to address a market failure that may not even exist. Markets are usually efficient, but always unpredictable: interventions rarely work as planned, and often produce unintended consequences.

But perhaps the area where I disagree with Piketty most is on the role of science in economics. History shows that the scientific method is the only reliable guide to knowledge; economics should embrace it. A scientific approach would start with accepted theory (i.e., market efficiency) as the null hypothesis; use statistical analysis of evaluate alternative hypotheses (market failures); and, if found, use trial-and-error on small samples to develop effective solutions (and new theories). Instead, Piketty uses misleading data and flawed analyses to propose a draconian solution to a nonexistent problem. His global wealth tax would likely produce uncertain, unintended, and possibly ugly consequences. In an effort to achieve a higher "political, normative and moral purpose," Piketty has abandoned scientific reasoning and sound economics.

References

- Arnott, R.; Bernstein, W.; and Lu, L. (2015) "The Myth of Dynastic Wealth: The Rich Get Poorer." *Cato Journal* 35 (3): 447–85.
- Blair, S. (2014) "Find a Better Way to Tax the Rich." *Wall Street Journal* (7 July): <http://online.wsj.com/articles/ideas-for-renewing-american-prosperity-1404777194>.
- Bryce, R. (2014) *Smaller, Faster, Lighter, Denser, Cheaper: How Innovation Keeps Proving the Catastrophists Wrong*. New York: Public Affairs.
- Brynjolfsson, E., and McAfee, A. (2014) *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. New York: W.W. Norton.
- Burtless, G. (2014) "Income Growth and Income Inequality: The Facts May Surprise You." *Real Clear Markets* (6 January). Available at www.brookings.edu/research/opinions/2014/01/06-income-gains-and-inequality-burtless.

- Diamandis, P. H., and Kotler, S. (2012) *Abundance: The Future Is Better than You Think*. New York: Simon and Schuster.
- Gwartney, J.; Lawson, R.; and Hall, J. (2014) *Economic Freedom of the World, 2014 Annual Report*. Vancouver: Fraser Institute.
- Mayor, T. (2015) "Income Inequality: Piketty and the Neo-Marxist Revival." *Cato Journal* 35 (1): 95–116.
- Milanovic, B. (2012) "Global Inequality by the Numbers: In History and Now." Policy Research Working Paper, World Bank.
- Piketty, T. (2014) *Capital in the Twenty-First Century*. Cambridge, Mass.: Harvard University Press.
- Quartz, S., and Asp, A. (2015) "Unequal, Yet Happy." *New York Times* (12 April).
- Rank, M. R., and Hirschl, T. A. (2001) "Rags or Riches? Estimating the Probabilities of Poverty and Affluence across the Adult American Life Span." *Social Science Quarterly* 82 (4): 651–69.
- Reynolds, A. (2014) "Why Piketty's Wealth Data Are Worthless." *Wall Street Journal* (9 July): www.wsj.com/articles/alan-reynolds-why-pikettrys-wealth-data-are-worthless-1404945590.
- Ridley, M., and Ganser, L. J. (2010) *The Rational Optimist: How Prosperity Evolves*. London: Fourth Estate.
- Schiller, R. J. (2000) *Irrational Exuberance*. Princeton, N.J.: Princeton University Press.
- U.S. Congressional Budget Office (CBO). (2013) *The Distribution of Household Income and Federal Taxes, 2010*. Prepared by E. Harris et al. Washington: U.S. Congressional Budget Office. Available at www.cbo.gov/sites/default/files/cbofiles/attachments/44604-AverageTaxRates.pdf.
- Wolff, E. N. (2007) "The Retirement Wealth of the Baby Boom Generation." *Journal of Monetary Economics* 54 (1): 1–40.
- Wolff, E. N., and Gittleman, M. (2011) "Inheritances and the Distribution of Wealth or Whatever Happened to the Great Inheritance Boom?" *Journal of Economic Inequality* (2011): 1–30.