George Grantham*

Capitalism in the Twenty-First Century: An Overview

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Abstract: Thomas Piketty's capitalism in the twenty-first century is arguably the most significant book in empirical economics since Simon Kuznets's *Modern Economic Growth* (1966) and, on a theoretical plane, since Keynes's *General Theory* (1936). Like Kuznets's masterpiece, this massive report on long-term trends in shares of income and wealth in the top decile and centile percent of their distribution quantifies a crucial and until now underreported dimension of aggregate economic performance. Like Keynes's, it raises fundamental questions about economics conceived as a science uniquely concerned with the allocation of scarce resources regardless of how the resources are distributed among individuals. Piketty's study focuses on that distribution, and in particular the share of the 10% of individuals who currently own 50–60% of private wealth in western societies and take home 35–50% of the national income (Piketty, 2014, pp. 247–249). The findings are new.

Keywords: capital, twenty-first century, empirical economics

Thomas Piketty's *Capitalism in the twenty-first Century* is arguably the most significant book in empirical economics since Simon Kuznets's *Modern Economic Growth* (1966) and, on a theoretical plane, since Keynes's *General Theory* (1936). Like Kuznets's masterpiece, this massive report on long-term trends in shares of income and wealth in the top decile and centile percent of their distribution quantifies a crucial and until now underreported dimension of aggregate economic performance. Like Keynes's, it raises fundamental questions about economics conceived as a science uniquely concerned with the allocation of scarce resources regardless of how the resources are distributed among individuals.¹ Piketty's study focuses on that distribution, and in particular the share of the 10% of individuals who currently own 50–60% of private wealth in western societies and take home 35–50% of the national income (Piketty, 2014,

¹ Economics is the science which studies human behavior as a relation between ends and scarce means which have alternative uses (Robbins 1932, p.15).

***Corresponding author: George Grantham**, Department of Economics, McGill University, 24 Chemin Bates, Apt 201, Montreal, QC, Canada H2V 1A8, E-mail: george.grantham@mcgill.ca

pp. 247–249). The findings are new. Not only is the distribution of wealth is more skewed toward the highest reaches of the upper tail than previously suspected, it was almost equally skewed a century ago. It was only in the troubled years between 1914 and 1945 that the share of the top wealth-holders declined significantly. While the revival of inequality can be explained, it is difficult to rationalize within the framework supplied by Paretian welfare analysis and impossible morally to justify (Atkinson, 2009).

The book thus revives a methodological debate over the nature of economic generalization that has simmered since the late nineteenth-century *Methodenstreit* between Menger and Schmoller (Louzek, 2011).² In that debate Menger claimed that an economic science worthy of the name had to be based on intuitively knowable “clear and distinct ideas.”³ Schmoller and the historical economists maintained to the contrary that economic knowledge comes from statistical and historical materials, and that policy should be based on fact, not timeless principles known only through introspection. Ever since Koopman’s essay (1947) attack on Wesley Mitchell and the NBER’s business cycle analysis, however, mainstream economists have held that the proper way of conducting empirical research is to pose hypotheses consistent with fundamental principles of agent maximization, market clearing, and stable preferences and proceed to test their implications. The logic of economic truth precedes empirical investigation. *Capital in the Twentieth Century* reverses that sequence. It begins by setting out facts and only then does it attempt to explain them. The book thus does more than report trends in wealth and income distribution: it questions methodological entailments that have governed professional economics since the 1950s.

Not surprisingly, the book has had critical reactions from defenders of the status quo (in economics as well as in society); more surprisingly, it has earned mixed reviews from economists who support Piketty’s views on the social costs of inequality. We shall consider these objections below. First, however, it is necessary to have a clear idea of what the book says. This essay is thus divided into three parts. The first part reviews the methods and the main findings. The second part considers some theoretical implications of those findings. The final part takes up some of criticisms of the book and attempts to reconcile its findings with the organon of neoclassical economics.

² The echo of this debate is evident in Robbins’s acrimonious attack on statistical methods (Backhouse & Durlauf, 2009).

³ See Rorty (2009) on the ontology of the claim that introspection secures permanent truths not accessible to observation. The belief that true science must be based on language stripped of ambiguity and emotive content was a central tenet of the Vienna Circle, from which the methodology of modern economics ultimately derived.

1 Methods and sources

The starting point of any empirical work is its definitions. Because careless readers took the word “Capital” in the title to signify reproducible means of production, we begin by noting that the operating concept of wealth is market value of tradable assets, a class that includes reproducible capital, real estate, government debt, stamp collections, mineral rights, and the capitalized value of monopoly rent. It excludes skills and talent embodied in human beings on the grounds that human beings cannot be bought and sold in the market at their full capitalized value.⁴ Piketty’s concept of “capital” is therefore not identical to the concept employed in neoclassical growth theory. In particular, it cannot be employed to defend or refute propositions that depend on diminishing return to physical capital in the aggregate production function. Although “capital” includes plant and equipment, residential housing, bridges, and other items used directly indirectly to satisfy wants, their value depends on social and legal norms delimiting conditions of use and compensation. The distribution of income is therefore not reducible to a physical relation between abstract labor and abstract capital considered independently of their legal and social context.⁵ Residential housing, which accounts for almost half the value of capital in modern economies, raises further definitional issues, since beyond a certain level wants satisfied by personal investment in housing are a function of relative rather than absolute size and quality, which implies that only a small proportion of that investment serves to increase social utility.⁶

The definition of capital as the value of marketable assets involves some double-counting, because the value of assets owned by government is partly

⁴ This distinction is obviously not absolute, since some individuals can obtain unsecured loans against anticipated income. However, it is clearly impossible to calculate the aggregate value of such loans, which in any event probably make up a tiny proportion of total wealth. Housing and private companies raise a somewhat similar problem, since they cannot be quickly converted to cash except at a loss relative to “true” value, but can serve as collateral for cash loans.

⁵ The most celebrated attempt to justify factor shares as the natural consequence of physical interaction between “capital” and “labor” was Clark (1956 [1899]). As is well-known he urged the theory of marginal product factor pricing to demonstrate show that the distribution of income under competition was “natural and ethically just.” On the ideological sources of that model, see Henry (1995).

⁶ Frank (2007) reports a thought experiment in which people are given a choice between living in a world in which they live in a 400 m² home and others in 600 m² homes and one in which they have a 300 m² home and others have 200 m² homes. Most people choose the second alternative. The implication of the experiment, which is supported by “happiness” studies (Easterlin, 2001), is that an improvement that leaves one’s relative position unchanged is not much of an improvement.

offset by government debt. Since public debt is simultaneously an asset of individuals owning it and an implicit liability of those paying taxes to service it, the capitalized value of the asset and the tax liability should be roughly equal, so counting the public asset and the public debt counts the same wealth twice. Conservative economists have long held that if (in the aggregate) individuals capitalize the tax liability associated with an increase in the public debt, the effect on changing that debt on aggregate demand is effectively zero (e.g., Barro, 1974). The argument depends on individuals not treating public debt as net worth, which despite its logical impeccability turns out not to be true because of uncertainty as to who pays the tax and when, and the fact that tax-payers and owners of public debt typically belong to different income classes and are subject to different tax rates. In any event, the evidence shows that holders of public debt consider it part of their net worth and behave accordingly. In terms of distribution, holdings of public debt are more concentrated than the implicit “holding” of public assets that supply “public” goods.⁷

In principle assets and liabilities created by private debt offset are perfect offsets, since by definition a promise to pay makes one person’s asset another’s liability.⁸ However, the complexity and opacity of contracts distributing price risk in financial instruments combined with questionable accounting rules for valuing pension liabilities and insurance contracts (not to mention outright fraud) leave room for doubt. The American housing crash in 2008, which wiped out a significant proportion of middle-class wealth, is a case in point. Had financial instruments supporting the explosive rise in household mortgage indebtedness in the early twenty-first century been properly regulated, both the level of household wealth and its subsequent catastrophic decline would have been significantly lower. Financial markets seem systemically to underprice risk and overvalue net worth. Such matters may seem like froth on an otherwise rising sea of wealth, but the unrequited transfers of extremely large sums of wealth to a small number of individuals, as happened in the American housing boom and more spectacularly in the privatization of industry and natural resources in the ex-Soviet Union, can produce large and lasting inequality in

⁷ The redistributive consequences of tax-supported public goods have been frequently underestimated. A significant difference between the United States, which from the First World War imposed highly progressive taxation on income and estates, and Europe is the smaller proportion of tax revenue going to public goods, resulting in a lesser redistributive effect than might be expected as compared with European taxes on consumption (Mehrotra (2014). On the redistributive effects of public spending, see Clark, Flèche and Senik (2012).

⁸ At the national level of aggregation international indebtedness can be of course positive or negative. On the eve of the First World War foreign debt held by residents made up nearly one third of British wealth of the UK and a bit more than one sixth of the French (Piketty, 2014, 120–122).

the distribution of wealth. Such transfers may reflect transitory market disequilibrium, but they are real, large, and persistent.

The question of double-counting reminds us that wealth is not an ethically neutral accounting category, but is a manifestation of behavior (in the case of public debt), laws, regulations, and norms that define legitimate use of productive resources and tradable goods.⁹ In brief, the concept of wealth is socially constructed. A century and a half ago, slavery was legal throughout much of the New World, and the wealth embodied in human chattel at the beginning of the nineteenth century was one and a half times the US national product (Piketty, 2014, pp. 158–161). The relatively low share of German wealth in residential housing seems to be due to rent control, a social choice that depresses the value (but evidently not the quality) of residential housing; similarly, German firms are valued less than comparable British and American firms because they are implicitly owned by workers' representatives who participate in decisions as active members of the board of directors. As in housing, the presence of non-proprietary stakeholders depresses the market value of companies, but does not seem to diminish their competitive performance.

The data come mainly from records of taxes levied on income and wealth. The fiscal data are crucial, because they are the only source that captures income of individuals populating the top 1% of the wealth and income distributions. Sample surveys necessarily miss most individuals in that group because there are so few of them. Without the fiscal data it would be impossible to track movement in the upper tail relative to the rest of the wealth and income distribution. Because the share of wealth and income in the top decile and centile is so large, changes in that dominate the overall change in the distribution.

The income tax data span approximately one century, which is long enough to capture most, though possibly not all, of the evolution of wealth and income distribution since the late nineteenth century. For the pre-industrial and early industrial era, the stylized perfect elasticity of long-run labor supply of classical economics implies – and the data seem to bear this out – that improvements in productivity resulting from industrialization would accrue to landlords and capitalists (Clark, 2007; Feinstein, 1998; Scholliers, 1989). The data on wealth cover a longer span, because land was everywhere taxed at an early date and in France all property transferred after 1791 was subject to a registration fee and declaration of the value transferred. Because the wealth series are synchronous with estimates of national income, it is thus possible to measure the evolution of the wealth/income ratio and the share of the upper tail of the wealth and income

⁹ On norms fixing legitimate bounds of goods and services exchangeable in markets, see Radin (1996).

distributions for up to two centuries. The observed trends seem robust to any plausible alternative constructions for the handful of countries for which they can be studied over a long period. The other main data are the French notarial probate records, which are utilized to estimate the distribution of wealth transmitted by inheritance. Unlike the fiscal records, the notarial data are extracted from large samples that involve labor-intensive transcription. It is impossible to understate the difficulty and importance of this work to the study's general conclusion that wealth tends inexorably to concentrate in ever fewer hands.

One of the main messages of *Capital* is that governments need systematically to collect information on current trends in the distribution of wealth and income just as they gather and process information on prices, wages, and national output, and for the same reason: to support informed policy.

2 Findings

Empirical findings take up about two-thirds of the book, the remainder being devoted to wealth and income inequality in relation to the “social state,” and policies proposed to arrest the march toward greater inequality. The main finding is that wealth rises secularly relative to national income and tends to become more concentrated. Since the highest incomes come from wealth in the form of rents, dividends, interest, profits, and capital gains, rising wealth inequality amplifies income inequality. The second finding is that most great fortunes now originate in inherited wealth. That wealthy sons and daughters have wealthy parents is hardly surprising; what is less obvious – though it should not be – is that large fortunes are self-perpetuating. Income from wealth at the highest level is so high that almost all of it is saved and reinvested.¹⁰ Short of financing a political clientele and private armies, extremely wealthy people cannot spend more than a tiny fraction of their income and must therefore accumulate wealth.¹¹

10 Steven Schwartzman, CEO of the hedge fund Blackstone is said to earn \$500 million dollars a year from dividends alone. [Bloomberg.com/articles 2015-02-05](https://www.bloomberg.com/articles/2015-02-05).

11 This may be changing in the United States, where a Supreme Court decision in 2008 legalized unlimited personal contributions to political campaigns. The Koch brothers are said to be contemplating contributions to Republican candidates on the order of one billion dollars and the total amount expected to go into elections in 2016 is expected to reach \$8 billion (Isquith, 2015). Assuming the trend holds up and wealthy donors compete for power like magnates of the late Roman Republic, one can imagine significant wealth dissipation caused by electoral politics.

The tendency for wealth to rise relative to income (and as a corollary to become more highly concentrated) is connected with Piketty's (and among economists controversial) finding that the rate of return on wealth has historically exceeded growth in real output, or put succinctly, that $r > g$. The finding is controversial because classical and neoclassical economics predicts that in the long run the steady-state rate of return should decline as the capital-labor ratio rises. Historically, however, the rate of return has ranged between 3% and 6% with a mean of between 4 and 5, while since the late eighteenth century g has ranged between 0.5% and 2%. When the rate of return on wealth exceeds the rate of growth of national income, a rising share of that income must go to owners of wealth.

This brings us to Piketty's "second law of capitalism," $\beta = s/g$, where s is net saving rate and g the rate of growth of output.¹² It follows that holding the aggregate saving rate constant, slowly growing economies have higher steady-state wealth-income ratios than fast-growing economies. This accounts for high wealth-income ratios observed in late eighteenth-century Europe, when growth rates were low (less than 0.5%) and the rate of return on riskless assets was 4–5%, supporting saving and accumulation at the top of the wealth hierarchy. It also explains why wealth-income ratios in the United States and other countries of recent settlement are lower than in Europe: g has been higher because population growth has been more rapid. The extreme wealth-income ratio in Europe on the eve of World War I after a century of accelerated growth is attributable to increased saving rates.¹³ The chief implication of the "second law" is that aggregate wealth-income ratios are likely to rise in the future because growth is likely to be slower than in the past, as population growth declines and a larger proportion of the world economy approaches the technological frontier.¹⁴ It is also plausible that rising inequality will produce a higher saving rate.

Although a rising wealth-income ratio has important macro-economic implications (Tobin, 1955), from the perspective of Piketty's investigation the main consequences concern factorial and personal distribution of income. If r does

¹² i.e., gross saving net of the proportion going to replace used-up capital.

¹³ The equilibrium condition assumes a constant saving rate. In countries experiencing accelerated growth in output per head, as was the case in Europe in the century before World War I and currently the situation in China, consumption typically lags growth in output. This probably explains the otherwise inexplicable maintenance of high wealth-income ratios in Europe at a time when g was rising.

¹⁴ The long-run rate of productivity growth in countries on the technological frontier is at most 1.5%. Since it seems unlikely that r will fall below 3%, it follows that the ratio of wealth to income must continue to rise.

not fall, or falls only slightly as β rises, the share of income going to capital must rise as long as any decline in r is proportionately less than the increase in β . This seems to have been the case since the late nineteenth century, which is consistent with the fact that advances in technologies embodied in machinery and electronic controls have made it progressively easier to substitute capital for labor in production, although the rising share of capital is partly explained by labor's diminished bargaining power resulting from globalization of labor-intensive manufactures.¹⁵ A rising wealth-income ratio also increases the income share of the top decile and especially the top centile because of the highly skewed distribution of income from capital. This tendency is aggravated by higher than average rates of return to wealth in the top centile of the wealth distribution. The bottom line is that if as expected g falls below 2% and r remains above 3.5% the wealth/income ratio will rise and income and wealth will become increasingly concentrated.

It is useful to place numbers on these conjectures. Contemporary eighteenth-century estimates suggest that in the late eighteenth century wealth-income ratios in France and Britain were around seven and remained near that level to the First World War, which implies that the saving rate s rose *pari passu* with g . A significant share of that saving was directed overseas. In 1914 net foreign capital comprised almost 30% of British wealth and slightly more than 15% of French (Piketty, 2014, pp. 116–117). The two world wars and intervening depression annihilated those holdings. The Second World War also destroyed about one sixth of the physical capital, so that by the end of World War II wealth-income ratio in Europe had fallen by 50% (Piketty, 2014, p. 128). The main culprits were progressive taxation at high marginal rates to finance war, sovereign default on Russian and certain Latin American debt, inflationary erosion of private and public debt, and declines in corporate and personal saving during the Great Depression, to which were added cascading private bankruptcies. The value of residential housing was depressed by rent control introduced to offset the effect of wartime inflation on workers' living standards. While the impact of these events on capital was greatest in Europe, even the United States, untouched by war, capital suffered significant declines during the Great Depression. The three decades between 1914 and 1945 thus experienced a reversal of the trend towards greater inequality that had characterized the nineteenth century. In 1914 the

¹⁵ This would not explain the rise in return to residential housing, which accounts for approximately half the private capital stock. Its contribution to capital's rising share probably reflects growing scarcity of building sites compounded by high income elasticity of demand for quality housing, both of which drive up rents. The latter is a function of household preferences, and therefore not related to the shape of the aggregate production function.

income of the average individual in the top 1% was 80 times greater than the average income in the bottom 50%; by 1940 the ratio had fallen to 20 and was to decline further at the end of the war (Piketty, 2014, pp. 368–369). The period is nevertheless an exception that proves the rule.

As is well-known, the immediate post-war period witnessed a surge in social spending that for a time secured greater equality in income and economic opportunity at the expense of private wealth accumulation. The mechanics of accumulation, however, did not cease to operate, and by the first decade of the twenty-first century wealth-income ratios had returned to levels reached a century earlier. Income inequality also returned to its pre-war level, although unlike in the *Belle Époque* the highest incomes now comprehend salaries of corporate executives. Rising executive compensation in a period when the median wage stagnated even as labor productivity was rising is the most spectacular aspect of recent changes in the distribution of income. It is also largely responsible for the growing gap between the income of persons in the top centile and the “middle-classes” populating the sixth through ninth deciles. The compensation of top corporate and financial executives does not, however, seem correlated with performance in areas under their control (with the possible exception of financial CEO’s paid for business they bring in as “rain-makers”), but with what members of corporate boards regard as “suitable” remuneration for individuals in their position.¹⁶ It is not unreasonable to hazard the conjecture that both in the top 1% and the bottom 50% of the income distribution earnings are determined by views as to what constitutes suitable compensation for persons in their respective situation, a conjecture that has obvious implications for setting a minimum wage and a basic income.

In Europe the average wage in the top 10% of the wage distribution is slightly more than four times the average wage in the bottom 50%; in the United States the ratio is 7:1 (Piketty, 2014, pp. 247–248). While much of that difference is attributable to high compensation of American executives, a substantial part reflects stronger protection of workers and higher minimum wages in Europe, which the advocates of austerity have been working to eliminate in the name of labor-market “flexibility.” Wealth concentration is an order of magnitude higher. In Europe the average person in the top 10% owns 60 times the wealth held by the average person in the bottom 50%; in the United States the ratio is 70:1. At the very top of the distribution (the top 0.1%) income from capital dominates all other earnings, as it did among the top 10% before

¹⁶ The same disease is also infecting compensation of university presidents (and underlings), whose salaries are set by the same individuals who determine compensation packages of corporate executives.

World War I. In recent decades the *rentier* effect has been moderated by exceptionally high compensation of corporate and financial executives, which might be interpreted as income transfers from shareholders in the top 0.1% to (highly paid) labor in the top 0.5%.¹⁷

In any event, wage and wealth inequality are driven by different mechanisms. Whereas the wage distribution reflects the demand and supply for different types of labor, as influenced by social norms, government regulations, unionization, the pace and type of technological change, and the education and acquired skills of the work force, the distribution of wealth is driven by saving and inheritance. One of the most important findings of Piketty's book, which has not been fully absorbed by his commentators, is that contrary to expectation, the importance of human capital relative to non-human capital has not risen.¹⁸ This has crucial implications for the distribution of wealth, since apart from intergenerational transmission of trade and business skill and the boost high-income parents can give offspring by securing them elite education, human capital is not transmissible across generations.¹⁹ Only physical capital and capitalized rights to income streams meet that condition. It is logically conceivable that in a world where productive capital consisted solely of human capital, and retirement savings consisted of annuitized claims on future production, bequests would be close to zero. But in the real world, this is not the case: life annuities (*rentes viagères*) account for less than 5% of total wealth in France and at most 15–20% in the United States.²⁰ At a minimum, four-fifths of private wealth in the United States and Britain and 95% in France passes to the next generation by inheritance and inter-vivos gifting.

17 The counterfactual is that the excess compensation of executives would have gone to shareholders rather than to ordinary workers, which would raise capital's share of national income.

18 Piketty (2014, pp. 223–224). There are huge measurement problems with respect to this balance owing to the difficulty of measuring the stock of skill relative to the stock of land and capital. Taking the super-long view, the ratio of human to physical capital has undoubtedly fallen. The highest proportions are likely to characterize hunting and gathering societies, where knowledge embodied in survival skills constitute an almost perfect example of human capital. See in particular Lévy-Strauss (1962).

19 To be more precise, the component of earnings due to inherited ability is subject to reversion to the mean.

20 Piketty (2014, p. 392) These figures apparently do not take into account “reverse mortgages,” which is a modified form of the *rente viagère* collateralized by real estate that has become popular in English-speaking countries as a way of permitting persons above 60 or 65 to draw on wealth embodied in their principal residence, which is usually the only capital they own. The contracts are widely viewed as abusive.

The dynamics of wealth distribution are driven by the condition $r-g>0$ projected across generations by inheritance. A simple example makes this perfectly clear. A person possessing an estate of \$10 million earns \$500,000 from capital at 5%. Suppose she also has professional employment earning another half million dollars. In the land of the rich, \$10 million is not a large fortune, nor is \$500,000 exceptional remuneration in the land of the well-paid, though both are in the top 0.5% of their distributions. If she were to save just one fourth of her annual income (half the interest on capital) her estate grows 2.5% per year; if g is less than 2.5%, her share of aggregate wealth rises. Now consider a person with no wage earnings who has property worth \$100 million. Income from capital is at least \$5 million and probably more, since the return on wealth increases with the size of the estate.²¹ If he consumes \$1 million his estate increases 4% a year, 60% faster than wealth of the person possessing “only” \$10 million. To summarize, the condition $r>g$ generates greater inequality because starting off from an unequal distribution of wealth, individuals at the higher reaches of the upper tail save and reinvest an increasingly higher share of the income from their capital.

Slow growth (the s/g effect) combined with a rate of return exceeding the growth of the economy (the $r>g$ effect) thus work to concentrate wealth. It is important to keep in mind that the effect is mechanical, in that it is driven by the parameters s , r , and g . $\beta = s/g$ is the long-run equilibrium wealth/income ratio for a fixed saving rate; $r-g>0$ is an historical fact. Unlike the gravitational constant, none of these parameters is set in stone, and all have changed during the past two and a half centuries. They nevertheless appear stable enough to support the conclusion that in foreseeable future the wealth/income ratio is likely to rise and concentration of wealth is likely to increase. These trends do not depend on features of the modern economy such as increased monopolization that may also contribute to inequality. Making markets “work better” by making them more competitive does not offset the tendency because it does not affect the parameters governing the distribution of wealth. Indeed, in the degree that deregulation of financial and other markets makes them more “perfect,” making markets more competitive by deregulation probably makes things worse.²²

Likely changes in the parameters imply increasing concentration at the global level. The growth rate g will decline as population growth slackens and

²¹ Piketty (2014, pp. 447–455), using an ingenious test based on the rate of return to university endowments.

²² Deregulation is commonly justified by appeals to Pareto’s welfare economics, the failings of which have been abundantly demonstrated, though not assimilated.

as an increasing share of global output comes to grow at the rate of productivity growth on the technological frontier, which increases β for given s . But the saving rate is also likely to rise in consequence of increased concentration of wealth, which will drive the wealth/income ratio β even higher. It is plausible that r might decline as β rises, but the effect on the wealth distribution will be partly offset by declining g . It is unlikely that r can fall below 3%, and the most likely scenario for g is 1% population growth plus a 1–1.5% growth in productivity. In sum, the mechanics of wealth accumulation predict increasing concentration at national and global levels of aggregation in the long run. This does not mean the poor will become poorer, but the gap between the poor and rich will become larger. Assuming the return on the largest fortunes is 6%, the top 0.1% of the world's population will own approximately 60% of the world's wealth by 2045 (Piketty, 2014, p. 439).

Inheritance transforms life-cycle accumulation into intergenerational accumulation. On the eve of World War I fully 90% of the stock of wealth in France was acquired by inheritance. This is because the top 10% owned 90% of total wealth. Individual aberrations aside, it was impossible to dissipate fortunes of that magnitude and so they survived to be inherited. In the first decade of the twentieth century the value of wealth inherited annually equaled 20–25% of national income. The proportion fell to 4% in 1945, as a result of the ravages wrought on the fortunes of the top 10% (and the fact that individuals in that class were running down their capital to support their standard of living). The euthanasia of the *rentier* was short-lived, however, and by 2000 the ratio of inheritances to national income was back to 16% in 2000 (Piketty, 2014, p. 380).

It is informative to compare the value of inheritances with the capitalized life-time income of individuals in the bottom half of the income distribution, who on average inherit nothing. On the eve of the First World War, the proportion of individuals born between 1870 and 1880 (who would have inherited between 1900 and 1914) inheriting more than the lifetime earnings of the “working class” was 7–8%. For persons born in 1970 (and inheriting about now) the proportion is 12% and rising. (Piketty 1914, p. 421) Since wealth was more concentrated in 1914, the rising proportion implies more small inheritances than in 1900–1914 (relative to the greatest fortunes and to working class incomes). As Piketty observes, this is a new and disturbing inequality. In 1914 most wealth was held by a small group of super-rich individuals. The new inequality is based on an upper middle class of *petits rentiers* comprising the educated elite, managers, and small businessmen whose professional success encourages a meritocratic vision of the social and economic world. Recent trends in social policy suggest that the views of this class are becoming increasingly hostile to the condition of the poor, whom they regard as inhabiting a

different universe of underachievers. In this respect the new inequality is more pernicious than the more extreme inequality of the early twentieth century, when politically significant elements of the upper class felt some responsibility for the condition of the poor, and not merely to ward off the threat of revolution (Daunton, 2007).

That the trend toward greater inequality of wealth (and inequality of income derived from that inequality) stems from the mechanics of accumulation does not mean concentration inexorably increases. The length of the data set permits identification of three phases in the modern history of wealth distribution. In the pre-industrial era, growth rates rarely exceeded 0.5% and the return on riskless assets (essentially perpetual mortgages secured by real estate) was generally 4–5%. Although savings were low in relation to national income, the low growth rate over time generated a high wealth-income ratio, while the high rate of return produced high concentration of (mainly landed) wealth, which was maintained through the nineteenth century with the result that on the eve of the First World War the top 10% owned close to 85% of total wealth in England and France, and 75–80% in Sweden. The next 30 years saw the wealth-income ratio decline by more than 50%, most of which was concentrated in the declining fortunes of the top 5%. By wiping out centuries of accumulation the years of war and depression “restarted the clock.” In the following decades of reconstruction and recovery, wealth and income were thus more (though far from) equally distributed than they had been for centuries. But from the 1980s the wealth-concentrating dynamics of s/g and $r-g$ once again began to reassert themselves, increasing the importance of non-human relative to human capital in the distribution of income. Even allowing for the catastrophic consequences of war on physical capital and government indebtedness, the twentieth-century dip shows that progressive taxation, unionization, and regulation of the housing market can affect the value and concentration of wealth relative to income. The moral of the story, apart from its intrinsic historical interest, is that social policy can significantly affect the distribution of wealth and income. It has been claimed without much supporting evidence that such policies reduce growth, to which claim two responses come immediately to mind: growth to whose benefit, and to what end?

Piketty’s main policy recommendation is that the most efficient method of limiting the tendency to increasing concentration is a combination of progressive taxation of income and wealth. Income taxation alone is not sufficient to achieve this goal because of the difficulty (among others) of taxing unrealized capital gains and because so much income from capital is harbored in tax havens. An annual tax on the value of wealth avoids these problems, and can be graduated in such a way as to limit the growth of super-large fortunes (on the order of, say, \$500 million or more). This proposal is hardly revolutionary, as it

merely extends to all classes of non-human wealth the principle of taxation of real estate, which as noted above accounts for approximately half of total private wealth. As with real estate, a general wealth tax would have to be based on an annual declaration or registration of an individual's total wealth. As Piketty observes, this is technically feasible, because real estate valuations are already maintained by tax authorities, while valuation of individual holding of financial assets is continuously kept up to date in electronic form by financial institutions. In principle, then, there is no technological obstruction to making an annual inventory of every person's net worth. The obstacle is not technical, but political: states harboring tax havens are understandably loathe to release the names and assets of those whom they harbor. Here, too, the difficulties are less than one might suppose. The United States already uses its power as the source of the world's clearing currency to force foreign banks to yield records of accounts held by American citizens and by non-Americans suspected of supporting terrorism, on pain of the targeted banks losing their right to do business in the United States. In principle, then, the United States could impose global registration of financial wealth, although that imposition would imply further extension of the American principle of extraterritorial jurisdiction.

3 The critics

Capital in the Twenty-First Century came out in English in March 2015, and immediately became a publishing phenomenon, selling over 80,000 books in the first two months, all the more astounding for its being an academic work. Piketty participated in televised and untelevised forums, gave countless press interviews, and the book was reviewed by major economists, including Nobel laureates Joseph Stiglitz and Paul Krugman and ex-Secretary of the United States Treasury Laurence Summers. It also was the recipient of hit pieces in the *Financial Times* and *Wall Street Journal*, which we need not consider, as the authors either misunderstood the book or simply claimed on no evidence that the data were false.²³ Serious reviews have mainly been by American

²³ And not just financial journalists. At a session on *Capital* at the American Economic Association Annual Meetings in January, 2015, conservative Harvard economist Greg Mankiw declared the Piketty “must hate the rich.” In response to the panel’s unanimous recommendation that inequality could be reduced by a progressive consumption tax, Piketty responded, “We know something about billionaire consumption, but it is hard to measure some of it. Some billionaires are consuming politicians, others consume reporters, and some consume academics” (Collins, 2015).

economists, and thus reflect the parochial perspective of the American economy, which as Piketty observes, has had higher rates of population growth than Europe, and because of its short history has not accumulated as much capital relative to income. American critics have thus tended to ignore the long-term perspective on wealth that subtends the book's central argument and instead concentrate on short-term causes of income inequality.²⁴ This has important implications for policy, because Piketty argues that even if the factors exacerbating inequality of pre-tax earnings were eliminated, mechanisms driving long-term wealth (and through that wealth income) inequality would still operate.

Academic criticism focuses on three aspects of Piketty's argument. The first is the claim that the great fortunes are mostly inherited, which goes contrary to the received doctrine that wealth accumulation is a by-product of life-cycle saving. The second criticism holds that the critical issue regarding economic inequality is not inequality of wealth but income inequality, which can be corrected by progressive taxation of all income, reducing pockets of monopoly that support excess profits and excess executive compensation, and by improving individual life chances through investment in education, (Stiglitz 2014; Krugman 2014). The third berates what the critics regard as the book's obsession with the fortunes of the very rich, at the expense of other segments of the income and wealth distribution. Let us briefly consider each of these criticisms.

The life-cycle hypothesis holds that aggregate saving is motivated by the desire to secure consumption in retirement (plus a modest residual for bequests). Since earnings supporting that saving are mainly earnings from labor and are exhausted in retirement, wealth consists of a float that is implicitly transferred from one generation of workers to the next (Samuelson 1957). While the steady-state condition $\beta = s/g$ holds in the long run, the aggregate wealth-income ratio can rise in periods of accelerated income and population growth owing to the temporary excess of saving over dissaving, a condition that characterized Europe and the United States in the nineteenth century and after the Second World War. It has been argued that the decline of farming and the increase in labor mobility in the nineteenth century led to a substitution of financial assets for traditional practice of parents being supported in their old age by their children, which would increase the importance of life-cycle saving (Ransom & Sutch, 1986; Sutch, 2015). The same argument has also been used to explain declining rural fertility (David & Sundstrom, 1988). The evidence for the change in saving behavior is impressive, but misses the point that the assets accumulated made up a modest proportion of aggregate wealth and affected the wealth of persons in the middle range of the wealth and income distribution. At

²⁴ Field's review (2014) is a notable exception.

present, only 20% of American private net worth is annuitized and the proportion in Europe is much smaller (Piketty, 2014, p. 392). Life-cycle saving, which affects the wealth of persons with moderate income but not that of the truly rich does not explain rising concentration of wealth. Even a moderately skewed distribution of wealth, such as existed in the United States on the eve of the Revolution, could seed the crystals of rising inequality. It is not the motive for accumulation that matters, but the amount. It is hard to imagine that Steven Schwartzman's annual half billion dollars of dividend income from Blackstone hedge fund will be consumed in his life time (he is currently 67).

The most common criticism, however, is that Piketty underestimates the importance of market imperfections and inequality of human capital. This criticism reflects the fact that much of the recent increase in *income inequality* in the United States has been driven by rising compensation of executives and majority shareholders of companies enjoying natural (and unnatural) monopoly, among which are included health-care insurers, major pharmaceuticals, telecoms, and too-big-to-fail financial institutions. The intuition that rising inequality owes much to rent extraction is reinforced by the decline in anti-trust enforcement in the United States (though apparently not in Europe) since the mid-1980s and the rising share of corporate resources deployed to protect brands and patents from potential usurpers. It is understandable, then, that many American economists privilege tinkering with industrial and financial structure rather than the tax code, all the more so in that the tinkering can be defended on the grounds that it is Pareto-improving and makes the economy more "competitive." It is, in short, the advice conventional economists are trained to give.²⁵

The most elaborate version of that approach is a recent paper by Joseph Stiglitz.²⁶ Stiglitz focuses on the mechanisms increasing the value of non-productive components of Piketty's "capital," which include land, capitalized monopoly rents, luxury housing, and non-reproducible assets like Old (and Young!) masters. In recent decades a significant proportion of income in the top centile of the distribution has come in the form of capital gains, a sizable portion of which resulted from fall in nominal interest rates from their peak in 1979–80 and the institution of implicit asset price support by the Federal Reserve (the "Greenspan put"). Stiglitz's emphasis on capitalization of expected

²⁵ It is notable, but not surprising that the tinkering does not include strengthening legislative protection of union activity, which according to conventional analysis generates monopoly rent for workers and thus makes the economy less efficient.

²⁶ My understanding of this paper is drawn from a summary of the paper given by Stiglitz in an interview with Lynne Paramore in Alternet. I have been unable to access the original, which was delivered at a seminar in early December, 2014 (Parramore, 2015).

return to imperfectly reproducible assets directs attention to the financial sector, where some of the greatest fortunes in recent years are to be found. Any increase in monopoly power (including monopsony in markets for labor and intermediate goods) can be capitalized in the value of the shares of companies benefitting from it. Since capitalization of monopoly rent is as privately profitable as investment in long-lived capital, and comes more quickly, financial markets focus on locating and seizing potential rents at the expense of riskier investment in durable capital. In effect, the well-known shortening of the time horizon of corporate executives resulting in significant underinvestment in long-lived reproducible capital has its origin in incentives created by the financial system to capitalize rents (Haldane & Davies, 2011). Just as Piketty's model of accumulation has a positive feedback from high earnings from capital to high saving, so does Stiglitz's. Collateralization of non-reproducible assets provides financial means to drive up their price, which in turn creates collateral for further speculation. The process obviously depends on rising leverage ratios, which are ultimately under the purview of the monetary authorities. Rising inequality is thus not "natural" to capitalism, but an artifact of recent economic policy.

Like most American critics, Stiglitz is mainly concerned with income inequality rather than wealth inequality in the belief that it is more fundamental. The capital gains from investment in non-reproducible (i.e., non-productive) capital diverts saving from real capital to positional and speculative assets, none of which increases the economy's productive capacity. He also observes that globalization and the weakened bargaining power of labor have raised capital's share of national income and with it executive compensation. The proposed remedies are conventional: progressive taxation of all income, including income from capital gains, more investment in education to increase labor productivity and thus wages, better enforcement of anti-trust laws and laws regulating corporate government, and raising the minimum wage. All these measures work against rising income inequality, but in light of Piketty's long-run patterns they are one-off affairs. They do not touch the distribution of wealth. In terms of Stiglitz's "defense of capitalism" the critique raises the question whether increasing inequality over the past 35 years is an anomaly attributable to recent globalization and monetary policy (which permitted financial innovations contributing to that inequality), or whether, as Piketty suggests, rising inequality is built into the DNA of capitalist societies. The verdict would seem to rest on whether the price indices of non-reproducible capital move roughly in parallel with the GDP deflator, which would not be the case if, as Stiglitz conjectures, saving out of income from capital is directed to bidding up the price of non-reproducible assets. Piketty argues that over the long-run the price of capital and current production have moved more or less together, which

makes the changing quantity and not the price of capital relative to income the main driver of secular wealth dynamics.²⁷

The final line of conventional criticism concerns what the critics regard as its unseemly focus on the fortunes of the rich and super-rich, that in calling attention to the extreme inequality of wealth, it undermines the legitimacy of an economic system that has, despite admitted flaws, raised the living standards of most of the world's population. Why take this achievement out on the rich whose inventions and investments have made most of it possible? Setting aside the fact that the book's contribution rests on a data base tracking the world's top incomes, without which none of its findings would be possible, the critique comes down to asserting that what really matters for human material well-being is not the variance of real income but its mean. The most forceful exponent of this view appears in an ill-tempered review essay by McCloskey (2014), who interpreted *Capital* as an attack on the "market system" and as such beloved of "leftists" who have not outgrown their infantile obsession with social justice. What students of the economy should really focus on is the rising standard of living the market has made possible over the past 200–250 years. If what we are really concerned with is the standard of living of the poor (which has risen mightily), why should we worry about the standard of living of the rich? What matters is absolute, not relative wealth. McCloskey also criticizes the book on the grounds that it ignores the fact that "old capital destroys new," and that excess rate of return anywhere in the economy induces entry that eliminates it.²⁸ New fortunes destroy old ones; the market mitigates inequality. As McCloskey does not supply any evidence that in the aggregate fortunes have foundered from competition (one thinks of the English landed aristocracy, whose fortunes seem to have survived the late nineteenth-century collapse of agricultural rents by being invested in government stocks and foreign bonds), one presumes it is advanced as a matter of faith.

Lindert (2014) offers a more considered criticism. Conceding that inheritance exacerbates the gap between very large fortunes and the rest, he argues that the critical problem facing policy makers is not the long-run dynamics of accumulation of non-human wealth, but the current distribution of total income, which for individuals below the top 5% is mainly determined by the distribution of human capital, distinguishing households in the 40–90% from households in the bottom 40%. The social problem is not the growing gap between the upper

²⁷ Lindert (2014) makes essentially the same point in his discussion of whether the r in Piketty's "fundamental laws" should be nominal or real.

²⁸ "The fundamental technical problem ... is that Piketty the economist does not understand supply responses" (McCloskey, 2014, p. 90)

middle class and the super-rich— fabled individuals with whom we never come into contact— but the gap between the middle and lower classes, with whom we do interact. Lindert observes that countries in which the share of the top 1% has increased are the same as those in which the gap between upper middle and lower class incomes has also increased, which suggests to him that the force behind increasing inequality is not Piketty's dynamic of wealth accumulation, which disproportionately favors the super-rich, but luck of the draw combined with class differences of educational opportunity, which favor the upper middle class relative to the lower classes.

Lindert's critique returns us to the fundamental issue raised by *Capital in the twenty-first Century*: does an economic regime in which most wealth is privately owned tend to grow economically and socially unequal, and if so, can that society persist? Like McCloskey, Lindert urges us to focus on the predicament of the poor rather than the felicity of the rich; like Krugman and Stiglitz, he urges reforms equalizing access to human capital and more progressive income and estate taxation. Like both, he shies away from Piketty's proposal to impose a progressive wealth tax because he considers the index of inequality to be lifetime income, not wealth.²⁹ The focus on absolute rather than relative income and wealth reflects the conventional view that what matters to individuals is what they personally consume, not what others consume; that what matters is absolute income, not income relative to someone in their reference group. This position, which is canonical welfare economics, is the fixed point of policy recommendations by professional economists. Any change that makes someone better off and no one (or almost no one) worse off is *prima facie* desirable. The problem is that we care about income distribution. The income of other people (especially those whose income exceeds our own) affects our sense of well-being; it affects our sense of self-worth, or perhaps more pertinently, our sense of what other people think we are worth Milanovic (2009).

4 Conclusions

The chief contribution of Piketty's work on wealth and income is that the main cause of growing gap between rich and poor is not class-based differences in educational opportunity and attainment, but differences in income resulting

²⁹ "More fundamentally, the inequality of nonhuman wealth is inherently less interesting than the inequality of total income or total wealth (including human). The material inequality we really care about is a person's lifetime resources, as shared within a household" (Lindert, 2014, p. 8)

from unequal possession of inherited wealth, to which may be added the rise of “norm-based” compensation of “super-managers.” These findings raise fundamental issues concerning the legitimacy of the current distribution of income and wealth. On what basis is passive income derived from a large inherited fortune socially justified? It may be that successful entrepreneurs are motivated by concern for their children and grand-children, but it strains imagination to suppose they look further down the line. Yet if one wishes to justify inherited wealth by the incentive effect, one must presuppose a dynastic motive. A second justification is that an exchange economy depends on secure property rights, which by the mechanisms described by Piketty implies increasing concentration. The problem with this position is that it is belied by the facts. Setting aside the Bolshevik expropriation in the 1920s, capitalist economies have survived bankruptcy, sovereign default, confiscatory taxation, and numberless broken private contracts without suffering significant loss of dynamism. The major threats to capital in the twentieth century were by-products of war and macro-economic contraction.³⁰ It can surely survive the modest redistribution supplied by a basic income.

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³⁰ Note here on Alex Field?

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