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Confronting Inequality:

Review Article on Thomas Piketty on 'Capital in the 2st Century'

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Abstract: This review article on Thomas Piketty's 'Capital in the 21st century' opens with discussion of the trends in income and wealth inequality reported by Piketty and his co-workers. The significance of the rising trends of inequality after 1980 in contrast to the pre-1980 trends is elaborated. It is noted that rising inequality has been accompanied by slower growth. Piketty identifies the relationship between the rate of return on wealth and the rate of growth as a major issue. It is argued here that an excess of savings out of return on wealth over the rate of output growth is unsustainable. It may lead, following Piketty, to rising wealth inequality, but we argue the difference would be deflationary and cause high levels of unemployment. While Piketty favours high income and wealth taxation to address that difference (from which we do not differ), there are additional ways such as enhanced worker power, corporation tax on a co-ordinated basis to reduce tax competition.

Key words: inequality, wealth distribution, income distribution

Journal of Economic Literature classification codes: D31, D63, O15

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Review Article on Thomas Piketty on 'Capital in the 2st Century' (translated by Arthur Goldhammer), Harvard University Press, pp. 685 + vii ISBN 978-0-674-43000-6

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Introduction

The title of 'Capital in the 21st century' has been seen as an echo of Marx's Das Capital, and indeed the author does speak of the 'two fundamental laws of capitalism', though how fundamental these are doubted below, and indeed whether they can even be reasonably described as 'laws'. However, the book could perhaps more accurately have been labelled Wealth and Inequality in the 20th and 21st century. It is more concerned with the ownership of wealth rather than the role of productive capital. It is focused on the trends of inequality of income and wealth over a broad sweep of time, and for the future. It portrays the future as one of rising inequality (in a rather specific way) arising from the relationship between the rate of return on wealth and the rate of growth, when the former much exceeds the latter. The style of the book could be described as 'mixed methods' – ranging from detailed statistical work on income and wealth distribution, through to reference to the mathematical modelling of 'optimal tax rates' undertaken in other papers which influence the relatively high tax rate proposals, policy proposals on taxation and drawing on literature (the author seems a particular fan of Jane Austen). In this review our focus will be on the income and wealth distribution statistics and the implications to be drawn from the trends exhibited there, and the mechanisms which are deemed to underlie the trends.

Inequality trends and arguments

Part 3 of the book provides some detailed statistics of income and wealth distribution for many industrialised countries. The income distribution statistics draw heavily on previously published works by Piketty and his co-authors. Those works and that of others such as the Luxembourg income distribution project and in publications such as OECD (2011) has broadly shown that inequality has generally been increasing during the past thirty years or so. This stands in some contrast to the trends in the post-war 'golden age' where inequality tended to be rather stable or decrease. Those earlier findings could be fitted in with the so-called Kuznet's curve in which it was postulated that inequality increased in the first stages of industrialisation but then tended to decrease in later stages, yielding an inverted U-shaped relationship between inequality and per capita GDP. The trends in income inequality in industrialised countries over the past three to four decades indicate that the Kuznets' curve on inequality with an inverted U-shaped relationship between inequality and GDP per capita has clearly broken down. The Kuznets' curve was based on a combination of empirical observation and some rather loose theorising on the manner in which industrialisation could generate rising inequality and at a later stage declining inequality. The general rise in inequality in the past three to four decades requires some explanations. Piketty points to the role of capital income in rising income inequality (around one third attributed), the interactions of education and technology of relatively minor importance and the dramatically rising share of the super-stars of management (and sports and entertainment). He largely dismisses the argument that rising inequality, particularly the rising share of the top 1 per cent can be attributed to their (marginal) productivity, even if such could be measured. Much of Piketty's focus is on the rise of wealth (relative to income) and of wealth inequality, and thereby of inequality of income from capital which is a significant component of higher inequality of income.

There has been a general trend of an increase in inequality in industrialised countries since circa 1980, in contrast with the trends prior to the mid-1970s.[1] However there are, not surprisingly, significant departures from that general trend and differences in speed of trend which are noteworthy. An example here would be the UK where inequality on a variety of measures is higher in 2014 than in the late 1970s, had begun to rise in the late 1970s, and did so substantially during the 1980s. Yet since the early 1990s with regard to income inequality it is more difficult to provide an overall judgement on changes in the level of inequality. The significance of this we would see as raising the question what were the differences between the periods which led to these different results over changes in inequality, and asks whether indeed inequality is on a persistently rising trend. We give some illustrative figures for the UK. For earnings, the very top and the very bottom of the earnings distribution gained relative to others over the period 1998 to 2013 though not by a great deal – the 5th percentile grew (in real terms) by 20.8 per cent, the 10th percentile grew by 15.8 per cent, and the 90th percentile 17.3 per cent with the median growing 15.5 per

[1] In Sawyer (1976) I sought to look at inequality amongst OECD countries on the basis on comparable data. I found significant differences in inequality between the 12 countries for which comparable data could be found, and a mix of broadly constant inequality and downward trends, but no case of rising inequality in the post war worlds until the early 1970s.

cent. In contrast to the period 1975 to 1998 where the corresponding figures were 60.2 per cent, 54.4 per cent and 106.7 per cent with median growth at 74 per cent[2]. On disposable income: in terms of the decile shares of equivalised (for household size) income, the lowest decline received 3.96 per cent in 1977, falling to 2.79 per cent in 1990, and then broadly stabilising (e.g. 2.66 per cent in 1999/2000, 2.96 per cent in 2012/13). Comparable figures for the highest decile were 21.62 per cent, 27.51 per cent, 27.07 per cent and 26.2 per cent[3]. In contrast, the analysis of Osberg (2014) indicates a more persistent trend on income inequality for USA, Canada and Australia (see his Figure 2) from circa 1980 onwards. Osberg further argues that these trends are unsustainable but there are not market forces which restrain the increase in inequality.

The statistics on wealth distribution presented by Piketty are more limited in that only four countries (France, Sweden, UK and USA) are included. Further, the construction of wealth distribution statistics is much more problematic than that of income distribution. The availability of wealth surveys is much less than income surveys; reliance is often placed on estate duty and inheritance tax data which have their own difficulties. As commentators have pointed out, there is also question of who is included in the relevant population and which wealth is included. As Piketty remarks (pp.336/7) 'the distribution of wealth— and therefore of income from capital— is always much more concentrated than the distribution of income from labor. In all known societies, at all times, the least wealthy half of the population own virtually nothing (generally little more than 5 percent of total wealth); the top decile of the wealth hierarchy own a clear majority of what there is to own (generally more than 60 percent of total wealth and sometimes as much as 90 percent); and the remainder of the population (by construction, the 40 percent in the middle) own from 5 to 35 percent of all wealth'.

There is something of a common finding across the four countries, which we illustrate by reference to France where the top decile of households held 80 per cent of wealth in 1810, rising to near 90 per cent in 1910, then falling to just over 60 percent in 1970, followed by a slightly upward trend. Some recent findings from Credit Suisse (2014) on wealth inequality (based on the share of the top decile) since 2000 covering 46 countries are of interest. Over

[2] Derived from Office for National Statistics, UK Wages Over the Past Four Decades – 2014

[3] Calculated from Office for National Statistics, Summary: Tables from the Effects of Taxes and Benefits on Household Income, 1977-2012/13)

the period 2000 to 2014, a rapid rise in inequality (defined as increase in share of top decline by more than 0.5 per cent per annum) was observed in 9 countries, a rise (0.2 to 0.5 per cent per annum increase) in 5 (including the UK), slight rise (0.1 to 0.2 per cent per annum) in 3 countries; wealth inequality was described as flat (change averaging between -0.1 and 0.1 per cent per annum) in 15 (including France, Sweden, USA), slight fall in 4, fall in 8 and rapid falls in 2 countries. Credit Suisse (2014) also found a 'contrast in experience before and after the financial crisis. In the period from 2000 to 2007, 12 countries saw a rise in inequality while 34 recorded a reduction. Between 2007 and 2014, the overall pattern reversed: wealth inequality rose in 35 countries and fell in only 11. The reason for this abrupt change is not well understood, but it is likely to be linked to the downward trend in the share of financial assets in the early years of this century, and the strong recovery in financial assets since 2007. … [Further], there is no clear pattern relating wealth inequality trends to region or to the stage of development, there is something distinct about the G7 countries. Only one of them, the UK, recorded rising inequality over the entire period 2000–2014, and only three show an increase after 2007 –France, Italy and the UK. This is unexpected, and interesting, for two reasons. First, income inequality has been rising in these countries and there is heightened concern about wealth inequality as well; yet in most of them, equalization from 2000 to 2007 was sufficient to offset any subsequent rise in inequality. Second, it appears that wealth inequality did not increase in some of the major countries closest to the center of the global financial crisis.' (Piketty, 2014, pp.32-3).

The data seem to suggest that income and wealth inequality had if anything tended to decrease in the 'golden age' of capitalism through to the early 1970s. This is not to ignore the statistical and conceptual difficulties in making such comparisons and is something of a 'broad brush' conclusion. In a similar vein income and wealth inequality has tended to increase since circa 1980 though the speed of increase in income inequality is greater than for wealth inequality.

An important question arises as to whether the changes in inequality (and more generally income distribution including that between wages and profits) are in effect a shift upwards from a lower level to a higher level or whether those changes constitute a trend likely to continue. If it is the latter, it raises the question of what have been the generating mechanisms, will they continue into the future and are continuous rises in inequality sustainable. Piketty appears in effect to answer that through the tendency for the average rate of return on capital[4] (*r)* to exceed the rate of growth (*g*) (refereed to hereafter as the *r* > *g* relationship) which is expected to continue into the future, then the wealth to income ratio will tend to rise, the contribution of capital income to income inequality rising and overall inequality will continue to rise.

These simple observations open up a large research agenda. The significance in the context of this review is that Piketty pays little attention to the differences between countries in terms of trends of inequality even though comparable material on income inequality is presented (and to a more limited degree on wealth inequality). The downside is the tendency to look to some general forces at work (globalisation etc., and for wealth and income inequality the operation of the *r* > *g* inequality) and to neglect the country specific aspects, and the roles of institutions and policies on inequality trends.

Piketty focuses on the roles of education and technology in seeking to investigate differences in the inequality of labour income across time and space. He argues that 'the most widely accepted theory is that of a race between education and technology' (p.304) in which the former sets the supply of skilled labour agenda and the latter the demand agenda. But 'this theory does not explain everything. In particular, it does not offer a satisfactory explanation of the rise of the supermanager or of wage inequality in the United States after 1980' (Piketty, 2014, p.304); and one could add rise of the sports and entertainment superstars, and not limited to the United States. Nevertheless the theory is seen as suggest[ing] interesting and important clues for explaining certain historical evolutions'. However he argues that 'over the long run, education and technology are the decisive determinants of wage levels', and that 'in the long run, the best way to reduce inequalities with respect to labour as well as to increase the average productivity of the labour force and the overall growth of the economy is surely to invest in education' (Piketty, 2014, p.307). It strikes me that Piketty is rather optimistic on the power of education, when, for example, he writes that 'if the United States (or France) invested more heavily in high-quality professional training and advanced educational opportunities and allowed broader segments of the population to have access to them, this would surely be the most effective way of increasing wages at the low to medium end of the scale and decreasing the upper decile's share of both wages and total income.' (Piketty, 2014, p.307) He praises the

[4] The term *r* is 'the average annual rate of return on capital, including profits, dividends, interest, rents, and other income from capital, expressed as a percentage of its total value' (p.25).

Scandinavian countries for more moderate wage inequality and a 'relatively egalitarian and inclusive' education system (p.308), though as Stefors (2014) 'the rate of increase in inequality [in Sweden] is the highest in the world, albeit from very low levels. The consensus-based and solidaristic wage negotiation process has been replaced by mediation in between increasingly fragmented unions (p.12).

Piketty recognizes that 'the labor market is not a mathematical abstraction whose workings are entirely determined by natural and immutable mechanisms and implacable technological forces: it is a social construct based on specific rules and compromises' (p. 308). But he appears to me to have an ambiguous stance over marginal productivity theory, and argues that the major problem 'confronting the marginal productivity theory is that the explosion of very high salaries occurred in some developed countries but not others' suggesting that 'institutional differences between countries rather than general and a priori universal causes such as technological change played a central role'. He then argues that in English-speaking countries, 'the primary reason for increased income inequality in recent decades is the rise of the supermanager in both the financial and nonfinancial sectors' (Piketty, 2014, p.315)

Inequality and economic and social performance

There was a major shift in political rhetoric on inequality in the 1970s and 1980s, reinforced by the coming to power of Thatcher in the UK and Reagan in the USA, and the rise of neo-liberalism. A major component of that shift was the perceived favourable links between inequality and economic performance. Mankiw (2013) amongst other have recently repeated many of the arguments – the prospects of higher monetary rewards will lead some to work harder, make investments, take risks etc., and thereby there is more economic prosperity. The 'trickle down' arguments then come into play – the rest of us will gain through the job creation and investment activities of the rich.

The period since circa 1980 has been for industrialised countries one of lower growth and higher unemployment on average than in the preceding decades of the 'golden age' of capitalism. The figures given by Piketty for per capita GDP growth (his Table 2.5) are for the period 1950 to 1980 3.4 per cent per annum in Europe and 2.0 per cent in America; corresponding figures for 1980 to 2012 are 1.8 per cent and 1.3 per cent respectively. The rise in inequality of income has not been associated with higher rates of economic growth which in effect has often been the justification advanced by the advocates of greater inequality in the name of incentives; rising inequality since circa 1980 has if anything been associated with slower growth. There were, of course, many other differences between the periods before 1980 and after 1980, notably the processes of financialisation and globalisation which have effects on inequality and on growth, and which could be invoked as having some effect. It is though interesting to here to refer to the recent paper in which Cingano (2014) found that 'the econometric analysis suggests that income inequality has a negative and statistically significant impact on subsequent growth'.

The 'trickle down' lines of argument essentially rest on the idea that greater incentives lead to harder work, more effective decision-making and more risk taking, and particularly from the latter (since some fail and some succeed) greater inequality results alongside higher output and growth. In contrast, higher inequality may well reflect developments towards a more 'winner takes all' society (Frank and Cook, 1995) through technological developments and the structure of markets. This is perhaps most readily illustrated by the rewards of sports stars and entertainment stars. It is perhaps self-evident that it is the structure of rewards (e.g. the relative prize money of the first placed to that of the second placed etc.) rather than the differences in effort or skill between the participants which sets the inequality of outcomes.

Piketty argues, particularly for the USA, that 'the increase in very high incomes and very high salaries primarily reflects the advent of 'supermanagers,' that is, top executives of large firms who have managed to obtain extremely high, historically unprecedented compensation packages for their labor' (Piketty, 2014, p.302). Two particularly interesting questions arise from that type of observation. The first is whether these recent rises in managerial incomes and the associated rise in the share of income of the top 1 per cent are a trend which will continue or a shift to a higher level. Piketty appears to say little on this, and his arguments that inequality will rise in future does not appear to rest on rising 'supermanager' incomes but rather on rising inequality due to rentier income. The second is how are these higher incomes of the 'supermanagers' to be regarded – that is are they rewards for superb effort or do they reflect enhanced power of managers to extract rent in a winner takes all environment. The symposium in *Journal of Economic Perspectives* of Summer vol. 27 no. 3 (Summer 2013) provides papers on both sides of the argument. Clearly, when the high rewards of the 'top 1 per cent' comes from rent, then there would be no positive association between rising inequality and economic performance. Indeed, rather than the rich being job generators they may well be job destroyers. A million pounds received by the rich would lead to a lower demand than a million pounds received by the poor; and as such the latter generates more demand and thereby more jobs than the former.[5]

The rate of growth – rate of return nexus

The central part of Piketty's thesis is conveniently summarised in the following. 'When the rate of return on capital significantly exceeds the growth rate of the economy (as it did through much of history until the nineteenth century and as is likely to be the case again in the twenty-first century), then it logically follows that inherited wealth grows faster than output and income. People with inherited wealth need save only a portion of their income from capital to see that capital grow more quickly than the economy as a whole. Under such conditions, it is almost inevitable that inherited wealth will dominate wealth amassed from a lifetime's labor by a wide margin, and the concentration of capital will attain extremely high levels— levels potentially incompatible with the meritocratic values and principles of social justice fundamental to modern democratic societies.' (Piketty, 2014, p.26)

It is not a water-tight move from the inequality $r > g$ to inherited wealth growing faster than output, but rather depends on savings decisions. There is also here the conflation of capital and wealth[6]. For our discussion we limit capital to what may be termed productive capital – that is the stock of capital equipment which is used in the production process. Wealth on the other hand is used to refer to household wealth which on the one hand can represents the household claims over the productive capital stock (though household wealth includes equity which is a claim over future profit steams of corporations), but would also include a range of other assets including consumer durables, works of art etc..

Much of Part 1 of the book is taken up with looking at capital-income ratio over long sweeps of history and the inequality at the global level. The discussion on capital, wealth and income recognizes the lack of precision over the estimates, and some reference to the differences between domestic and foreign ownership of assets. But there is no substantial discussion on the issues of the valuation of capital and wealth. This can be illustrated in

[5] An essentially similar argument applies with regard to the distribution of income between wages and profits: when an economy is deemed to be wage-led then a shift away from wages and towards profits reduces demand and employment, see, for example, Lavoie and Stockhammer (2013).

[6] 'To simplify the text, I use the words "capital" and "wealth" interchangeably, as if they were perfectly synonymous' (Piketty, 2014, p.47)

many ways, and I give two examples here. In pre-industrial society, land would be the major form of wealth: what may be important here is output per acre of land, i.e. yield and how far the amount of land available can support the population. But what is used here is the value of land – but how is that valued? In so far as there is what can be viewed as a market in land, it is what people are prepared to pay for it. Another and of particular relevance would be the valuation of equity with the wide variations in the ratio of equity to dividends and profits, and the valuation of the productive capital stock in so far as that valuation depends on profit prospects.

The second feature is the focus on the relationship between the rate of return on wealth (*r*) and the rate of growth (*g*), and the postulate that *r* is substantially larger than *g*, and the gap between the two may well widen. Specifically Piketty envisages that growth in industrialised countries will be of the order of 1 to 1 ½ per cent per annum through demographic factors and technological opportunities, and the rate of return of the order of 4 to 5 per cent. If the wealth holders save a significant portion of the return on wealth, then wealth grows faster than income. Further, Piketty argues, the wealthier are able to gain a higher rate of return on their wealth than the less wealthy, and that feeds into growth of wealth inequality. In effect, Piketty argues that the rising wealth to income, the rise in rentier income and in wealth inequality may be politically unsustainable. There are in my view three problems with the arguments advanced.

The first arises from Piketty's focus on savings behaviour particularly by the wealthy without regard to investment behaviour of corporations and the accumulation of productive capital. He has in effect adopted a neo-classical perspective whereby the growth of assets is driven by savings behaviour rather than a Keynesian perspective whereby the growth of assets is driven by investment. Capital can be viewed in terms of productive assets on which profits are aimed for, and most of which have come through investment. Wealth is owned by individuals and organisations often in the form of financial assets. There should be a broad equality between the two but there will be differences arising from, for example, ownership of non-productive assets such art collections, antiques, and through issues of valuation including price bubbles. In broad terms a rising wealth to income ratio would need to go alongside a rising capital to output ratio. The former is seen by Piketty to depend on savings decisions whereas the latter depends on technological conditions, and there would seem little reason why the two ratios would rise in line. The mechanisms which Piketty envisages come from savings behaviour – wealth owners receive capital income, save much of that income, wealth increases, and when there is some combination of $r > g$ and relatively high savings, the wealth to income ratio rises. But does this mean that the capital to output ratio rise? In so far as wealth and capital are closely interlinked, and similarly income and output, then the answer would seem to be yes. But the capital:output ratio relates to the production technology. Whether the capital:output ratio is treated as a constant ('stylised fact'), as varying with the structure of output and technology, or as arrived at through substitution according to a neo-classical production function is response to relative prices, it lies on the production decision side and not on the savings side.

The second comes from the well-known valuation and measurement issues, which are largely ignored by Piketty. A specific example comes from the average rate of return on capital where capital itself has to be valued. Insofar as the value of capital is based on discounting future profits, the rate of return is a reflection of the rate of discount being applied.

The third comes from the focus on the average rate of return on wealth linked with the rate of profit, and the absence of discussion of other rates of interest, and also of the discount rate. The rate of interest on government bonds is relevant for wealth holders as a significant portion of financial wealth, and also for the sustainability of budget deficits. Yet the real rate of interest on government bonds has tended to be close to the rate of growth. Insofar as there is some linkage between market rates of interest and the rate of discount of the future, then slower growth and lower rates of interest may suggest applying a lower rate of discount to public decision making.

The relationship between the rate of profit and the rate of growth do raise important issues for sustainability. At a simple level, slower growth will involve lower investment (relative to output); from a macroeconomic perspective, lower investment involves some combination of lower savings, larger budget deficit and exports surplus. The former likely requires lower propensity to save and lower share of profits. Piketty in effect assumes that neither of those will happen (and an export surplus cannot be a universal answer). An alternative proposal is to aim for a lower share of profits – through strengthening the power of workers and higher corporation tax, for example.

Piketty's analysis can be contrasted with another well-known relationship between the rate of return on capital and the rate of growth (which are largely ignored by Piketty), notably the Cambridge equation based on an equality between savings and investment (applied to a closed economy without a government). Savings are largely based on profits, and investment is closely linked with the growth of output with investment enabling the capital stock to grow in line with output. Then savings equal to investment yields the equality $s.r = g$. In contrast, Piketty's approach would argue that $s.r > g$. In other words, Piketty is indicating that the tendency to save exceeds the tendency to invest (on the basis that investment will be undertaken to keep the capital stock growing in line with output).

There can then be seen to be two problems with Piketty's approach. The first is that his focus is on savings without paying any regard to the other side of the equation, namely investment. He views wealth to income ratio to be rising; but that also means the capital to income ratio rising. What is the consequence of that? From a neo-classical perspective, the marginal product of capital, and thereby the rate of profit would decline (there are well-known objections to that view from the work of Sraffa and others). From a heterodox perspective, if savings intentions exceed investment intentions, deflation results with high levels of unemployment. If the capital-output ratio rises, the rate of profit will decline unless there is an increase in the share of profits, and as the capital-output ratio continues to rise, increasing share of profits.

The second is that the intention to save out of wealth exceeds investment intentions: savings to take place has to be matched by investment. The excess of savings over investment provides a deflationary situation, which can be met by the government running a budget deficit or which results in high levels of unemployment.

The question then arises as to whether the scenario portrayed by Piketty of $r > g$ could be sustainable in that it appear to involve that savings intentions (based on returns on capital) would tend to exceed investment requirements (based on the rate of growth and relative to GDP equal to $g.v$ where v is the capital-output ratio). As such a highly deflationary position would arise, unemployment would rocket, and there would be no mechanisms which would close the gap between savings intentions and investment requirements. A substantial budget deficit or export surplus (which of course is not available to all countries) could potentially bridge the gap. It is noticeable that Piketty's discussions make little mention of unemployment, capacity utilisation or fiscal policy.

There would many reasons to think that growth rates in industrialised countries will continue to slow as they have tended to do in the past few decades since the end of the ‘golden age’. The causes of this slower growth can be various ascribed – to the end of technological catch-up (by industrialised countries with the USA), the impacts of financialisation on investment, the failures of neo-liberalism by maintain growth through increasing inequality; and to these Piketty adds slower population growth (and sometimes decline). The ecological limits on growth are though strangely absent from his discussion, but reinforce the view that growth will be lower than during the ‘golden age’ of capitalism. But whatever the causal factors behind slowing growth, it would seem likely that future growth rates in industrialised countries may well be of the order suggested by Piketty or slower.

Another issue which has been pointed out is the use by Piketty of a single average rate of return, whereas there are important differences between, for example, the rate of return on government bonds and the rate of return on equity with regard to their level, their implications for distribution along with the risks and uncertainties involved. For the arguments just considered it would appear that it is the average post-tax rate of return on wealth which is particularly relevant. It is though relevant also to consider some of the rates of return which enter into that average. The relationship between the rate of interest on government bonds and the rate of growth is significant for the sustainability of budget deficits. It can readily be shown that a primary deficit (excluding interest payments) ratio (to GDP) will lead to a debt ratio of $d/(i - g)$ where i is the post-tax rate of interest on government borrowing, and equality between i and g would lead to position where current borrowing equals interest payments. The rate of interest on government bonds is relevant for the sustainability or otherwise of primary budget deficits. The rate of interest on government bonds is one which seems to have run counter to Piketty’s suggestions. For example, the Government’s cost of borrowing was put at inflation plus 2.2% (Browne Report, 2010, p.35), which would be a little below the trend growth rate of the UK economy. For the Eurozone in the period 2000 to 2007 the average difference between real long-term interest rate and the growth rate was 0.04 per cent, though it was rather higher after 2008 as the growth rate turned negative[7]. On the foreign sector, in a similar vein a trade deficit would lead to ever rising debt ratio if rate of return paid to foreigners exceeds the growth rate. For a corporation, its valuation may also depend on the rate of discount and the rate of

[7] Calculated from OECD *Economic Outlook* Statistical Tables.

growth of profits where a finite value for company requires rate of discount applied greater than the expected rate of growth.

The rate of profit (corporations) forms the basis for the return on equity, whether through dividends or through capital gains (which themselves are based on re-investment of profits and expectation of rising profits). This is not to suggest that the share price is a good evaluation of the profit prospects of firms; nor to ignore equity price bubbles and busts. Some of the significance of the rate of profit has been indicated above.

The rate of interest on bank loans and bank deposits; the difference between them being a major source of profits for the banks. The rate of interest on bank deposits is particularly significant when taken as an indicator of interest gained by the 'small investor'. The notion of the 'fair rate of interest' and significance for pension and like arrangements.

The 'laws of capitalism'

Much of the discussion is organised around what Piketty labels two fundamental laws of capitalism (set out pp.52-5) – rate of profit equals share of profit times capital output ratio and growth rate equals saving ratio divided by capital-output ratio. I find it surprising that what is as Piketty (p.52) acknowledges an identity should be labelled a law of capitalism – it would be true for any economy. It would become of interest for a capitalist economy when something is said about the drivers of share of profits and/or the capital-output ratio. The formula $g = s/v$ is a little different in that it is more an equilibrium condition achieved over time. There is no reference to the previous uses of this formula, whether in the neo-classical growth model of Solow or as the warranted rate of growth a la Harrod. In the context of the latter, much attention was given there to its so-called knife edge problem and instabilities, and to the discrepancies between the so-called natural rate (work force plus technical change) and the warranted rate.

Piketty expresses the 'law' formula as $v = g/s$ which is deceptively simple, but raises a number of questions. To what does g refer?: as a tendency formula, then g would refer to the rate of growth of the capital stock (or in Piketty's terminology wealth). This leads to the question often raised in the 1940s and 1950s, namely how does the warranted rate of growth compare with the 'natural' rate of growth? If those two growth rates differ what are the implications for employment rate?; it can also be interpreted in terms of how does investment compare with savings, and what are the implications for capacity utilisation (and also for budget deficit). Are there adjustment processes? Solow in effect pointed to capital-output ratio (and also removing an independent investment function); Kaldor hinted at the distribution of income when there are differential propensities to save out of wages and profits, and hence the average savings rate changes. Piketty in terms of growth seems to place emphasis on demographics and productivity, i.e. the natural rate of growth.

How can it be said that Piketty is focused on capitalism as an economic system rather than the mechanics of inheritance. In that regard first note Piketty's arguments that inheritance is a much more significant source of wealth than within life time savings, and that the life cycle hypothesis 'explains' circa one quarter of wealth holding. Other issues of sustainability come from the relationship between the rate of return and the rate of growth, e.g. the no Ponzi condition, the current account position. Piketty focuses on, as is apparent from above, on the average rate of return on wealth; and it is apparent that that is not only an average (and hence its dispersion is neglected) but combines a range of different types of return; and those different types of return have different implications.

Policy responses

It is imperative to consider the macro-economic and distributional consequences of that slower growth. Piketty's preferred solution is that of a global wealth tax, which would need to be substantial – in effect sufficient to reduce savings out of rentier income to around 1 to 1 ½ per cent of wealth. To boost the level of demand such a wealth tax would need to be spent, and public expenditure increased or other taxes decreased. There is much to be said for such a wealth tax, which is in no way to underestimate the practical and political difficulties of securing such a tax. However, we would argue that the implications of the $r > g$ assumption are more widespread and serious than Piketty envisages, and that there can be other ways of addressing the issues. Taxation on corporate profits can be raised; the power of workers enhanced to shift the distribution of income from profits to wages.

Piketty's presents some policy proposals to address rising inequality. There is some discussion of the role of education ("in the long run, the best way to reduce inequalities with respect to labor as well as to increase the average productivity and the overall growth of the economy is surely to increase education" (Piketty, 2014, pp.306-7). It may be doubted that education can have a significant impact on the inequality of arising from the income of 'superstars' and 'supermanagers'. In Piketty's analysis, it is the inequality arising from rentier income which is the focus of concern, and this is not closely linked with earnings or with the rewards of education. The policy proposals which have attracted much attention have been those for a wealth tax levied at the European or global level. Piketty's long discussion (Chapter 14) on progressive income tax finishes off with remarks that his work indicates an optimal income tax rate of up to of 80 per cent (p.512). The tax proposals are directed towards the reduction of inequality, and are perceived to have little by way of disincentive effects.

What is the problem to be solved? The $r > g$ formulation, when applied to the rate of profit and the rate of growth, does presents sustainability issues as we have suggested above. But we would argue that the rising wealth to income ratio which it foresees is unlikely to persist unless there is also a rising capital to output ratio. The attention on this inequality r > g serves to detract from the many other dimensions of inequality, and from the causes of the inequality of labour incomes and of poverty when attention is paid to the inequality of wealth. It must though be recognized that Piketty implies that inequality is not helpful for economic performance[8], which goes alongside the work of authors such as Wilkinson and Pickett (2010) which focuses on 'social performance' and inequality.

The use of a more progressive tax system is one clear avenue to aid the reduction of inequality – running into the well-known difficulty of tax shifting. Any policy proposal to reduce inequality runs immediately into the issue that economic inequality is accompanied by political inequality, and the operation of the latter reduces the political possibility to address the former.

Concluding comments

Piketty's book has documented the widening inequality which scars industrialised economies, and generally draws the implication that rising inequality has not been justified by enhanced economic performance. He has identified the relationship between the rate of return on wealth and the rate of growth as a major issue. In our view, an excess of savings out of return on wealth and the rate of growth is unsustainable. It may lead, following Piketty, to rising wealth inequality. But we have argued that the difference would be deflationary and cause high levels of unemployment. There is a need to restrain the effective rate of profit – and this can be attempted through enhanced worker power, corporation tax on a co-ordinated basis to reduce tax competition.

[8] See Cingano (2014) for recent empirical support of that proposition.

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