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Unpacking the first fundamental law

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In the early pages of *Capital in the Twenty-First Century,* Thomas Piketty states a "fundamental law of capitalism" that $\alpha = r x \beta$, where α is the share of profit in income, β is the capital/output ratio, and r is the rate of return on capital, or the rate of profit. Thus:

$$r = \alpha/\beta$$

Using K for capital, P for profit and Y for both total income and output (which are equal in equilibrium), we have:

$$\alpha = P/Y \text{ and } \beta = K/Y$$

so that:

$$r = (P/Y)/(K/Y)$$

The point of this expression is that r cannot be observed directly, whereas the two ratios on the other side of the equation can be. Yet (clearly) Y is unnecessary, since this expression reduces to:

$$r = P/K$$

with no loss of generality. So the measure of r requires just two things: a flow of money profits from the national income accounts, and a measure of the stock of capital.

What is K? For Piketty, K is the *financial valuation* of privately-held capital assets, including land, bonds, stocks and other forms of private wealth, such as housing. One may quarrel (as I have) with the connection of this value to prior definitions of capital, but that is not the issue here.

Financial valuation (FV) can be rendered as the *present value of the expected future returns from the ownership of capital assets;* for this a discount rate is required. Is the discount rate the same as r? Not necessarily. Keeping them distinct, we have:

$$K = FV = \sum_i [\, E(P_i) / (1+d)^i \,]$$

where E indicates an expected value, d is the discount rate and (i) is a time subscript.

Note that FV *depends* on d. If the discount rate falls, then the financial value of the capital stock will rise. Since the discount rate bears some relationship to the interest rate, at least in equilibrium, FV and therefore r can be pushed around by monetary policy, so long as monetary policy can influence financial valuations without also affecting current money profits. FV also depends on the current expectation of future flows of profit income, which are, in part, a psychological matter.

Clearly, this concept of capital bears no relationship to the physical construct that normally

enters a neoclassical production function or the technological view of the capital/output ratio. Piketty's use of “K/Y” as notation is, in this respect, non-standard. Still, nothing prevents us from measuring r – as Piketty defines it – from the observed profit flow and the financial valuation of the capital stock.

Why, as an historical matter, would r as measured tend to be constant over long periods of time? One answer is now obvious: *the expected stream of future profits at any given time depends on current profits.* In a boom, things are good and are expected to remain so. In a slump, the reverse.

P and FV do not always move together. But they will more often than not. And so the ratio between the two observed variables – which is r – will normally not change very much. One can surely find exceptions – in the turning points of the business cycle, or when monetary policy drives capital valuations out of synch with current profits. But Piketty's approach of calculating decade-by-decade averages may wash those out, to some degree.

What does the long-run constancy of r have to do with physical capital, savings or marginal productivity? Nothing at all. Piketty's r is basically a weighted average of financial rates of return across the yield curve and the risk profile of privately-held capital assets. It is the artifact of current profits and of discounted profit expectations on market values. If the discount rate rises (falls), other things equal, the ratio of current profits to financial values also rises (falls). But if the discount rate is stable, thanks to long-term stability of monetary policy and of social attitudes – or even thanks only to averaging over time – then that r should also be reasonably stable over time is no surprise.

Piketty's next big assertion is that r > g, or that the return on financial valuation is normally higher than the rate of growth of income. And so, he argues, so long as the ownership of financial assets is concentrated, as it always is, this leads to an increasing concentration of income (and therefore wealth) as the normal condition of capitalism.

For the truth of the first sentence, we can (for the moment) accept Piketty's evidence – noting that the entire 20th century is an exception. But the first sentence does not lead necessarily to the second.

First, profits are taxed. If t is the tax rate and if r is measured before tax, then the correct measure to compare with g is not r but r(1-t). Second, part of post-tax profits are spent on consumption rather than reinvested in new capital. Then, if cc is the rate of capitalists’ consumption, including charitable gifts, we could have:

$$r > g \text{ but } [r(1-t)-cc] <= g$$

Putting r at 5 percent, the tax rate at 0.3, and capitalists' consumption including gifts at a modest one-fifth of their pre-tax gain, then the left-hand-side expression falls by half, or roughly to the historic value of g. It’s hard to see how this could lead to a rise in K/Y or in the share of profit in income. And in a simple model, it would not; P/Y falls if [r(1-t)-cc] < g.

On the other hand, even if [r(1-t)-cc] < g, it is still possible for changing financial valuations to generate increasing concentration of wealth at least for some time. So long as capital is unevenly held, as it always is, bubbles *in selected sectors* (technology, energy, finance) will make some people rich. True, bubbles are transient; eventually they burst. But they could be

the main thing that we have been dealing with, in short cycles, in most of the wealthy world, for the past 30 years (Galbraith and Hale, 2014).

Finally, Piketty argues that a slowdown of economic growth, due to slower population growth, must inevitably lead to an increase in the capital-output ratio. This is a simple artifact of the constancy of r, alongside a drop in g. But, as Jason Furman (2014) has asked, would r necessarily stay steady if g declines? Looking back at the formula, it all depends on current profits, future expected profits, and the discount rate. If slow growth reduces either current profits or the discount rate, or both, while expectations remain stubbornly high, it's possible that r might decline even more than g.

In short, five conclusions may be drawn:

1) The alleged long-run constancy of r is an artifact of no great economic interest.

2) Even it is generally true that r > g, it does not follow that capitalist economies have a necessary tendency toward an increasing share of profit in income.

3) If the share of profit in income is not rising, there is no obvious reason for wealth to become more concentrated.

4) Yet, wealth inequality can rise in a capitalist economy even if [r(1-t)-cc] < g, due to bubbles in financial markets and capital gains that do not count as current income.

5) The effects of a demographic and growth slowdown on the relation between r and g is indefinite. It is not inexorable that slower growth increases the capital-output ratio.

None of this is to deny that rising inequality has occurred. Nor to claim that it doesn't matter. And by yanking mainstream discussion of inequality from the micro to the macro sphere – where it belongs as I have been arguing since the mid-1990s! – Thomas Piketty has done a service to economics.

But his goal was to turn the historical record into fundamental laws and long-range tendencies. Despite strong claims – accepted by many reviewers – it is now clear that this project fell short.

As a matter of the empirical record, the modern inequality data do not show any inexorable tendencies. Inequality fell sharply in the two World Wars.[1] It rose very sharply in many places beginning around 1980 or in some cases a few years before. And that increase largely peaked in 2000, worldwide. The great rise of inequality in recent years was a consequence of

[1] As for *why* inequality declined during the two World Wars, Piketty lays heavy stress on a decline in K/Y, the capital-output ratio. Numerous graphs (with odd and uneven date-spacing) illustrate this decline for major countries engaged in the wars. But the implicit case that a fall in K/Y had to do (in part) with physical destruction of productive capital makes no sense for any major country in World War I, and only for Germany and Japan in World War II. Moreover, *a pure decline in K*, whether physical or financial, *would have increased, not reduced, r,* by Piketty's own definition, and therefore it would have increased, not reduced inequality. [How could Piketty not have seen this?] Further, the fact that all belligerents saw large increases in money incomes, relative to capital valuations, also cannot explain the drop in r relative to g, since Y actually plays no role in the determination of r. (This is a point I did not quite grasp, in preparing my review for *Dissent.*) So what *did* cause the fall in inequality? The obvious answer is that money profits P (and also capitalists' consumption) were constrained in the major countries by war-time controls, as a matter of strict policy, while a rapid growth of labor incomes was allowed to proceed. This drove r far below g and so increased the labor share and equalized incomes. Contrary to Piketty's statements in several places, this was no accident. In the United States during World War II, the policy to achieve it was directed by the Office of Price Administration under the direction, in 1942-3, of an economist whose name I do not recall seeing in Piketty's text: John Kenneth Galbraith.

the debt crisis, the collapse of communism, of neoliberal globalization. It was not a long-run phenomenon. Piketty projects that it will resume and continue, but it may or may not.

Since 2000, *declining inequality* has been observed in post-neoliberal (but still capitalist) Latin America. There is new evidence of declining inequality in China, and also in Europe after 2008, at least if one takes the continent as a whole (Galbraith *et al*., 2014). In the US, there has been a sawtooth pattern, closely related to the stock market, with inequality peaks in 2000, 2007 and 2013, but little trend since 2000 (Galbraith and Hale, 2014). In some cases, income inequality may fall thanks to an old-fashioned Kuznets transition, most recently in China (Zhang, 2014).

Finally, there seems no warrant for the view that annual global capital wealth taxation is required to reduce the rise or the level of inequality. Many other measures, including higher wages, expanding social insurance, health care and housing, debt restructuring, effective estate and gift taxes to spur *in vivo* gifts, and the control of predatory finance *have worked and do work* to achieve this goal.

Perhaps Piketty's Law will vanish – as quickly as it has appeared?

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