

3 September 2014 **REVISED FINAL**

**Thomas Piketty's *Capital in the Twenty-First Century*:
Introduction to a Structuralist Symposium**

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Abstract: A symposium with papers by Prabhat Patnaik (Jawaharlal Nehru University, New Delhi), Nelson Barbosa-Filho (São Paulo School of Economics), Gregor Semieniuk (New School), and Lance Taylor (New School) presents critical analyses from a structuralist point of view of Thomas Piketty's *Capital in the Twenty-First Century*.

Key words: Income distribution, Wealth distribution, Growth

JEL Codes: B5, E1, E6

* Schwartz Center for Economic Policy Analysis, The New School. Support from the Institute for New Economic Thinking is gratefully acknowledged. Conversations with Thomas Ferguson and Duncan Foley helped shape the argument.

Thomas Piketty's book on *Capital in the Twenty-First Century* (2014) set off an enormous debate on income and wealth inequality that shows no sign of dying down. This symposium presents four papers critical of the book, written from structuralist perspectives. The authors are of diverse Marxist and (left) Keynesian persuasion. They share the view that the functional and size distributions of income and wealth are shaped by effective demand and social conflict. The distribution of wealth emerges from a sequence of short-term macroeconomic situations, cumulated over time. There is no reason for the macroeconomy to arrive at "full employment." Indeed as both Prabhat Patnaik and Lance Taylor point out, in the long run forces leading to more inequality in the global economy could easily create secular stagnation of output and growth from the side of demand.

Within the broad structuralist tradition, the papers draw upon ideas worked out in the economics department at the University of Cambridge (UK), in particular the "capital controversies" with economists from the Massachusetts Institute of Technology in Cambridge USA (G. C. Harcourt, 1972). Subsequent Cambridge ideas on cyclical growth (Richard M. Goodwin, 1967) are also relevant.

By way of introduction, Table 1 provides a quick peek at the US distribution of wealth in 2012, based on data from the Bureau of Economic Analysis and the Federal Reserve supplemented by distributive analysis by Edward N. Wolff (2012). In line with national income and flow of funds accounting conventions, outstanding equity is treated as a business liability and an asset of the other sectors. Several points stand out.

Table 1: Capital Stock, Assets (-) vs. Liabilities Subdivided into Bonds and Equity, and Net Worth (in Columns) by Sector and Household Income Groups, 2013

Levels in US-\$ billions

	Capital	Bonds	Equity	Net worth
All HH	-16312.3	-23769.1	-28960.5	69041.9
Lower 80%	-3154.7	-3176.8	-1332.2	7663.7
Upper 20%	-13157.6	-20592.3	-27628.3	61378.2
Lower 99%	-11923.1	-15909.8	-16768.1	44601.1
Upper 1%	-4389.2	-7859.3	-12192.4	24440.8
Firms	-19903.3	1774.7	29482.6	-11354.0
Gov't	-12508.0	16862.8	-279.9	-4074.9
Finance		-5131.6	-1047.2	6178.8
R.O.W.		3175.3	805.1	-3980.4
Col. sum	-48723.6 *	-7087.9 **	0.1	55811.4

Sources: Assets, liabilities, net worth from Financial Accounts (Federal Reserve, 2014); capital stock from Survey of Current Business (Kornfeld, 2013), household groupings computed based on Wolff (2012).

* Capital stock figures from 2012.

** Unequal zero due to discrepancies in the Financial Accounts data compiled by the Federal Reserve.

Total wealth (or net worth) of the private sector – households (and nonprofit institutions) and business -- is the sum of the value of fixed assets or “capital” K , government debt, and net foreign assets. Capital is the dominant entry. In line with recent political discussion, households are split into the top 1% and the bottom 99% of holders of wealth. The top 1% directly own 35.4% of household net worth, consistent with other estimates. They hold only 26.9% of household capital stock, basically residential housing (the top 20% hold 80.7%!). Households overall hold roughly one-third of capital, and business holds around one-half. The rest, infrastructure basically, is owned by the government.

The business sector has negative net worth, because of the high value of equity outstanding. The economic position of the top 1% is reflected in its control of equity – 35.4% of the total. In common American or Cambridge usage the “valuation ratio” of equity to capital (q or v) is greater than one. (See below.)

The table poses other analytical questions. One is whether capital can be valued. In line with a mainstream economics tradition tracing back to the 19th century American economic Darwinist John Bates Clark, Piketty believes that there is an “aggregate production function” based on employed labor L and K as a physical capital aggregate. With assumed full employment of the two inputs, under perfect competition the production function and associated “marginal productivity conditions” are supposed to determine the profit rate r , the labor share ψ , and other distributive variables.

Cambridge UK economists (Joan Robinson and Piero Sraffa especially) long ago destroyed this castle in the clouds. To quote Duncan K. Foley (2006, p. 165-66),

“...when Clark tries ... to argue that marginal products of capital and labor determine equilibrium profit and wage rates, he fails to consider the issue of determination of the prices of the various capital goods....[T]hey are determined within the system for the whole economy, so they cannot be taken as data in determining wage and profit rates. Furthermore, as the prices of capital goods vary, the same physical collection of capital goods (factories, machines, and so forth) will represent different amounts of ‘capital’ in Clark’s sense...[I]t is not possible to speak of a given amount of ‘capital’ whose scarcity determines the profit rate.... The Cambridge, Massachusetts, side of this debate eventually admitted that Robinson was correct in pure theory, but most neoclassically trained economists continue to use the concept of ‘capital’ as a scarce input to production, and most undergraduates are taught to think of the profit rate as being determined by the marginal product of ‘capital.’”

Thomas Piketty far surpasses undergraduate competence in economics, but still accepts Clark’s fable. By contrast the authors included in this symposium are well aware of the Cambridge critique and see social conflict as the major determinant of distribution.

With regard to estimation of the “real” capital stock, standard practice is to deflate current investment expenditures by “appropriate” price indexes which already include r and asset prices more generally as components of costs. So long as one does not play games with marginal productivity conditions Clark’s problem of simultaneous causation does not arise. Rather, K just scales the macro system in the models discussed in this

symposium. It does *not* enter along with labor into a neoclassical aggregate production function.

As hinted above, a second major problem is how to determine the extent of control of the capital stock by different income groups (treating government debt and net foreign assets as minor components of wealth). Piketty effectively consolidates households and firms into a private sector, thereby sweeping business retained earnings and investment under the rug. In the Cambridge tradition, Luigi L. Pasinetti (1962) follows a similar path, working with a two-class model of “capitalists” who receive profits but no wages and have high saving rates; and “workers” who have some claim to capital income, receive wages, and have low saving rates.

As discussed below, one can mount a powerful critique of Piketty based on Pasinetti, but both elide the issue of how to assign retained earnings (or “saving”) of business to households. In national income accounting practice, net financial transfers (interest and dividends) to households plus retained earnings are just about equal to total profits (the discrepancy is due to minor non-financial transfers). Besides financial transfers, capital gains on equity are the main alternative channel for getting profit income to households but they do not fit well into either author’s model.

Pasinetti’s emphasis on differential saving rates is, however, crucial. The change in wealth for any group of households is the sum of its saving and capital gains. A gap between saving rates and preferential access to capital gains (with a conveniently low tax rate in the USA) are the two main determinants of growth of wealth for rich

households vs. the rest. The “excess” equity reflected in valuation ratios exceeding unity represents the past fruits of this process.

This point of view is implicit in Piketty’s analysis, but he ignores it to focus on an inequality $r > g$, with r as the profit rate and g the rate of capital stock growth. Output will also grow at rate g when the economy is at a “steady state,” the economists’ version of the “long run.”

In his paper, Lance Taylor argues that the inequality is bound to be observed in the data. The profit share π determines $r = \pi(X/K)$ with X as output (real GDP, say) while the saving rate s sets g from $g = s(X/K)$. Since $\pi > s$ almost always in the data (even extrapolated to the long run), Piketty’s inequality follows trivially.

Prabhat Patnaik points out that a much more fundamental reason for the inequality emerges from Pasinetti’s model. His capitalist class receives income rK_c from its control of capital K_c . Near a steady state with overall capital and capitalists’ capital both growing close to the rate g , there may well be joint causation between r and g (as in Patnaik and Taylor’s papers). Nevertheless the capitalists’ saving at rate s_c and r enter the balance equation

$$g = s_c r \quad . \quad (1)$$

With $s_c < 1$, $r > g$ automatically.

Of course, Pasinetti’s model is very abstract – pure capitalists may inhabit the top 0.1% or 0.01% of the wealth distribution. The top 1% of households in the *income* distribution receive substantial wage and “proprietors” incomes but earnings from

capital are the dominant source (Taylor, et.al., 2014). The top 1% account for the bulk of household saving and so are bound to have a big impact on r through a relationship such as (1). There is no obvious linkage between r and some sort of production function.

True to his neoclassical creed, Piketty says r is determined as the marginal product of capital from a neoclassical production function. Moreover, he thinks output growth will slow in the twenty-first century due to slower population growth and (perhaps) slower labor productivity growth as well. In other words the capital/labor ratio K/L will rise. He also thinks that $r - g$ will go up, despite the fact that $s_c < 1$ in (1)!

Piketty invokes a parameter σ , the “elasticity of substitution,” to justify his assertion. In accepted theory when $\sigma > 1$, π will rise and r will not go down by very much when K/L increases as the economy grows. In his contribution to this symposium, Nelson Barbosa-Filho uses national income accounting relationships to produce a marvelous formula

$$\sigma = (\hat{K} - \hat{L}) / \{(\hat{K} - \hat{L}) - [(\hat{\omega} - \hat{\xi}) / (1 - \psi)]\} \quad (2)$$

which calculates the value of σ in terms of growth rates of employment \hat{L} and capital \hat{K} , growth rates of the real wage $\hat{\omega}$ and productivity $\hat{\xi}$ and the labor share ψ . At best, σ is a residual parameter which attempts to wrap changes in demand for labor and capital, distributive and productive shifts, and the overall income distribution into one number. Barbosa asks why such a chimera merits any consideration whatsoever.

All the papers raise interesting additional points. Patnaik observes that

“[Piketty’s] explanation for the burgeoning inequality in income from work in the US in the recent period is that the corporate managers determine their own salaries and pitch it too high, i.e. their salaries are not linked to their ‘marginal productivity’. He seems to think that while the ‘marginal productivity’ explanation can be jettisoned for this segment, it can nonetheless be applicable for the segment consisting of the mass of ordinary workers. This however is fallacious. Even within its own paradigm, once ‘marginal productivity theory’ is given up for one segment, it just breaks down...”

The neoclassical response to this difficulty has taken the form of a theory of the “second best” (not mentioned in Piketty’s index). A major “break-down” such as paying managers more than their marginal product and workers less will create “welfare losses” across the system. Piketty cannot use an unmodified neoclassical growth model in such circumstances; a serious effort would have to be made to address the market “distortion”. The big welfare loss from wealth concentration arises because high income people save a lot and the rest of the population very little. Piketty’s main policy suggestion is a wealth tax. If that could be combined with a transfer to the underpaid, there could be a clear welfare gain. Doing this simple exercise in applied welfare economics did not seem to have crossed Piketty’s mind.

Finally, Patnaik also observes that capital is more mobile internationally than labor. It can go to the periphery, forcing real wage growth in the center to be lower than productivity growth.

After introducing his formula (2) for σ , Nelson Barbosa concludes that the parameter is pretty useless, and goes on to investigate determinants for the labor share,

employment, and output for the US economy. He adopts Richard Goodwin's cyclical growth model, and in the structuralist tradition fills in details on the basis of observation rather than neoclassical abstract theory. The key linkages are that growth in the wage share responds positively to the level of employment and negatively to its own level. Growth in employment, on the other hand, responds negatively to both the wage-share and its own level.

Barbosa estimates an econometric model for the post-WWII US economy. It generates decade-long cycles with relatively slow convergence properties. He concludes that there is *no* notable downward trend in the wage share, contrary to one of Piketty's well-known claims.

In his paper, Gregor Semieniuk takes up Piketty's sometimes confusing treatments of "wealth" and "capital." By the latter he means a concept more or less equivalent to the " K " being used here. The former concept adds additional assets, say land, to " K ". Because it embodies more possibilities for substitution, σ for wealth may exceed σ for capital. For a sample of eight rich countries since 1960, wealth has a mild upward trend while capital is more stable.

The preponderance for empirical estimates of σ gives values between zero and one. Semieniuk uses a standard estimating equation to show that the usual result carries over to both of Piketty's measures of production inputs.

Piketty invokes the 18th and 19th century classical economists to include land as a "productive asset" of the same nature as capital. But that is not how Smith, Ricardo, and Marx saw the world. Rather, they thought that land was a limited, non-produced

asset which earns a rent determined by other forces in the system. As Semieniuk observes, Piketty grasps this distinction but still seems to think that land and capital can play the same role in the production process.

Finally, Lance Taylor presents a growth model in which wage repression can lead to secular stagnation by enriching the rentier. Lower economic activity decreases labor's bargaining power so that the share of profits in output (π) tends to rise. Activity is stimulated by increased investment due to a higher π .

Wealth distribution is measured à la Pasinetti by the ratio Z of capital owned by a capitalist rentier class to the total. Suppose that Z goes up. Rentiers have a high saving rate implying that in a demand-driven Keynesian economy X/K goes down. With a looser labor market due to the reduction in the output/capital ratio, the profit share increases, pushing up the growth rate of Z . Depending on economic structure (in particular, differences in saving rates between the classes), this positive feedback may or may not destabilize the system. If stability reigns, there will be a persistent steady state level of Z . If not, there may be euthanasia or triumph of the rentier. In the long run Z is reduced and X/K increased by a downward shift in π , i.e. less wage repression offsets secular stagnation and improves economic performance overall.

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