Structuralist macroeconomics, past, present and future.¹

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It has been a tremendous honor and privilege to be associated with this mini-conference. I would like to thank my colleagues Daniele Tavani and Duncan Foley for organizing it, and the Union for Radical Political Economics for providing a welcoming space. My career as a political economist really began with a terrific education at the New School for Social Research. There was (and probably still is) no such thing as a New School of Economic Thought—New Schools would be more like it. Having exposure to the diversity of approaches among structuralist economists made a lasting impression on me, and it would be no exaggeration to say that I am still fascinated by the intellectual challenge of synthesizing the classical, Marxian, and Keynesian traditions. This indeed is my stock definition of "structuralist" macroeconomics, a term which I prefer to the often-used alternative, "heterodox," that (at least to my ears) connotes an undeserved subaltern status.

In fact, looking back at the progress that we have made over the last four decades, I am struck by the extent to which our tradition has inherited the vibrancy of our forebears (Smith, Ricardo, Marx, Keynes), in sharp contrast to the empty scholasticism of the mainstream neoclassical economists who dominate the profession through their control of its key institutions. I have a few thoughts on some defining features of the structuralist research project that I'd like to share in what follows.

The availability of textbook presentations testifies to some of the progress we have made. When I was in graduate school, there were really no texts devoted to preparing structuralist economists, although there were several very good treatises by Geoffrey Harcourt, Donald Harris and Luigi Pasinetti. One highlight of my career has been working with Duncan Foley to produce such a text, Growth and Distribution, which has now come out in a second edition. The icing on the cake for me is that in writing the second edition we were joined by Daniele Tavani, who is part of the first generation to have been influenced by our text. His contributions incorporate some of the developments catalyzed by the first edition as well as progress within the larger structuralist community. Even greater access to the progress of structuralist research can be found in an excellent text (Heterodox Macroeconomics: Models of Demand, Distribution and Growth) written by two participants in this conference, Robert Blecker and Mark Setterfield. Their pedagogical strategy pays more attention to the breadth of the literature than the one we chose in Growth and Distribution.

Working with Duncan really brought my own personal research project into focus around three elements that I think capture the Vision (in the sense of Schumpeter) of the structuralist approach and partly account for its continuing resonance with a complex and evolving global capitalist system. This is not a comprehensive or definitive list by any means.

First, the Cambridge Capital Controversies of the 1960s and 70s more or less eliminated any pretense that the neoclassical aggregate production function rested on coherent microeconomic foundations. We won that battle, but what about the war? Critiques do not, alas, defeat bad theory; for that, an alternative is required.

The structuralist approach provides compelling illustrations of the value of "macroeconomics without the production function." Our contribution in the first edition of *Growth and Distribution* was the fossil production function (Duncan Foley is responsible for this soubriquet). Here the idea is that if technical change takes the capital-using, labor-saving form that Ricardo and later Marx foresaw, it will give the appearance of movement along a well-behaved neoclassical production function. This provided us with an analytical framework for interpreting much of the historical and statistical record, as well as a clear explanation for the empirical failure of the neoclassical approach which, for example, typically underestimates substantially the critical output elasticity of capital.

The fossil production function is only a partial explanation, since it takes Marx-biased technical change for granted, but I think it had the salutary effect of directing attention to the process of technical change in historical time, rather than the selection of one optimal technique from among many in logical time. This hopefully helped accelerate research into the old idea of induced technical change (already resurrected by Gérard Duménil and Dominique Lévy) or endogenous technical change resulting from investments in R&D. There is now some promising new research, some of it represented in this conference, emphasizing that technical change can be "wage-led" since a higher wage share incentivizes capitalists to allocate resources toward laborsaving innovations. Importantly, this idea has gained advocates among both the more classical and more Keynesian branches of structuralist political economy because it connects rising inequality to the secular stagnation exhibited over the last several decades by neoliberal capitalism.

One reason the neoclassical economists have been unwilling to ditch their flawed production function is probably that without it their basic growth model lacks coherence. In the Solow growth model, the production function solves Harrod's existence problem: adjustments in the output-capital ratio (capital intensity) dependably provide just the right number of jobs to match the labor force along the transients of the model. Take away that mechanism and there is no obvious alternative. In the classical and Keynesian approaches, on the other hand, the recognition that capitalist societies always display a class structure provides a ready-made answer to Harrod: since capitalists save and invest at a higher rate than workers, the distribution of income can adjust to align actual growth with some predetermined natural rate of growth. (Of course, in structuralist theory, it is also possible for the natural rate of growth to contribute to the adjustment process, since it is at least partly endogenous.)

The classical and Marxian traditions are particularly well positioned to make the class structure a central feature of structuralist macroeconomics, the second element in this triptych. In these traditions, agents are "personifications" or prototypes of the social relations of production (i.e., property relations), and their behavior is considered to be characteristic of those relations. This approach rejects the dogma of methodological individualism that permeates the neoclassical paradigm on the grounds that it attributes agency to individuals, unfettered by social constraints. While class analysis is certainly not a prerequisite for membership in the structuralist community (see Peter Skott's chapter in this book for an example), it is definitely part of the intellectual ambience. For example, the Keynesian theory of wage-led demand growth is premised on the class structure of consumption spending. And Pasinetti's Cambridge Theorem, which emphasizes that the capitalist saving propensity mediates the relationship between the growth and profit rates independently of workers' saving, has been such a recurring theme in my own theoretical work that I have often said it is the second most important discovery (after the multiplier) in 20th century macroeconomics.

A third element of the structuralist approach is recognition of the contingent nature of growth and development. In particular, structuralists reject the mainstream belief in a unique natural equilibrium path or ultimate longrun full employment equilibrium. Instead, our models frequently recognize the presence of multiple equilibria, path dependency, and/or hysteresis. Even when the natural rate of growth is taken to be fully exogenous, structuralist models are often capable of exhibiting multiple levels for the time path of economic aggregates reflecting the historically contingent nature of growth. The superiority of this underlying Vision and its policy significance have only been strengthened by the historical experience of late capitalism. It is hard to deny the evidence of hysteresis in the aftermath of the Global Financial Crisis (GFC) of 2008 for example. Importantly, this Vision is not always captured in structuralist models of growth such as the celebrated Goodwin model. In particular, the dependence of growth on profitability creates a powerful temptation for economists to accept the existence of an invariant equilibrium employment rate that creates a large enough reserve army of unemployed workers to maintain growth at some predetermined level. This is certainly not full employment as envisioned by neoclassical theorists but it does bear a family resemblance to a "natural" rate of unemployment. Given the abundant evidence of hysteresis, this conclusion may work in theory, but it clearly does not work in practice.

Despite all our progress, challenges remain, but I am optimistic that they will be met. My short list includes three or four broad questions. The first is really a nexus of intersecting questions organized around a set of binary oppositions: long versus short run, Keynes versus the classics, and endogenous versus exogenous growth.

When we completed the first edition of *Growth and Distribution*, I was convinced that the world was (to use Duménil and Lévy's felicitous phrasing) "Keynesian in the short run, classical in the long run." This formulation fit well with our emphasis on classical models with full capacity utilization, while creating quite a bit of space for debate about the nature of the short-run (e.g. whether demand growth is wage- or profit-led). But I no longer share this early enthusiasm, even though I think the aphorism is basically right. For one thing, the classical models conflate saving and investment decisions without really explaining how they are coordinated—this being the central and perhaps defining feature of Keynesian growth models. To overcome this lacunae I have concluded that we need to pay more attention to financial assets and asset markets as I explain below.

However, I still do believe normal capital utilization forms a long-run center of gravity for modern capitalist economies, probably owing to the stabilizing efforts of inflation-targeting central banks. Identifying the mechanisms that make this true has been a recent personal research project of mine.

The endogenous/exogenous opposition, of course, does not intersect the classical-Keynesian binary, since many (most?) Keynesian economists accept the idea that labor supply is not the key constraint on growth. In *Growth and Distribution*, we present both a labor-constrained closure (the full employment model) and a capital-constrained closure (the conventional wage share model). We also use the conventional wage share assumption in a demand-constrained model. Speaking for myself (not my co-authors), I have always

viewed the conventional wage share closure as a good first approximation to actual capitalist economies, including advanced ones that enjoy access to domestic and global reserve armies of labor. And following the lead of Pasinetti, I view the labor-constrained models more as exercises in logic that establish the necessary conditions for something like full employment growth rather than establishing the necessity of full employment growth itself.

But this is almost certainly too simplistic since really-existing capitalism lies somewhere in the largely unchartered terrain between these two extremes. I believe that models with path dependence in the employment rate offer a promising path into this wilderness. And the present juncture in world capitalism, with declining birth rates, the depletion of rural labor reserves and perhaps the shadow of the COVID-19 pandemic, makes exploring this terrain particularly imperative.

Finally, the dramatic developments since the GFC have made me aware of how little we really know about asset pricing and the relationship between the interest rate and the profit rate. It seems very likely that late capitalism has entered an era of unprecedented low asset returns (high asset prices), dramatized by the Effective Lower Bound constraint on interest rates regulated by monetary authorities that was binding for many years after the GFC. Structuralist models often abstract from financial assets but this now seems a luxury we can ill afford. My own choice (and I'm sure there are others worth exploring) has been to attack this problem by returning to the idea that asset prices play a role in coordinating saving and investment, so that in the final analysis the world remains "Keynesian" in the long run as well as the short in the sense that investment and saving are mutually determined. Yet this does not eclipse the classical nature of the world as the Cambridge Theorem continues to rule the relationship between the growth and profit rates.

In looking back, I'm struck by the parallels between doing political economy and solving a crossword puzzle. Except the political economy puzzle's clues and answers are in different languages including mathematics, the grid is three-dimensional, and to make it even more challenging the correct answers change from time to time!

One really exciting development is that structuralist and other unconventional ideas have achieved a level of acceptance and practical importance in the world of politics and policy making that they have not previously held in my lifetime. Ultimately, making further progress along the lines I've outlined here can contribute significantly to the creation of a more democratic, socially just, and ecologically sustainable world since (*pace Marx*) in order to change the capitalist world it is first necessary to understand it.