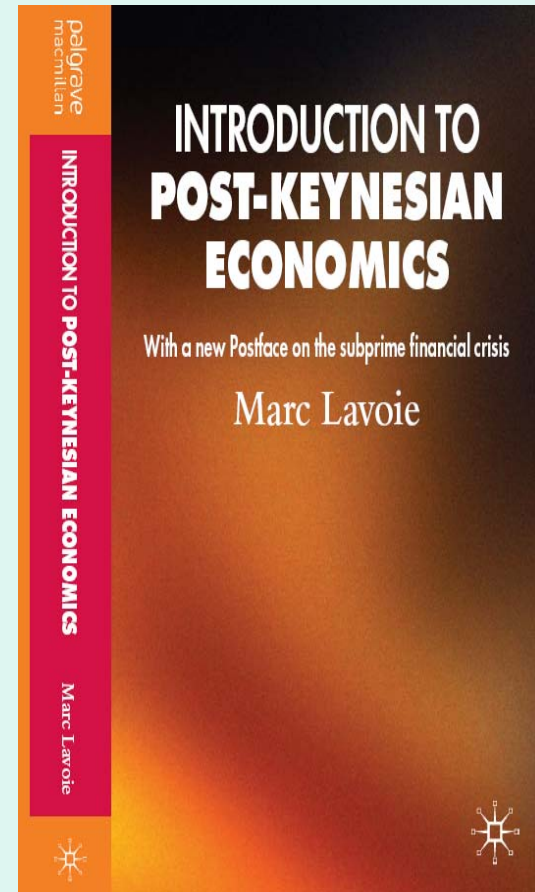


History and Methods of Post-Keynesian Macroeconomics

Marc Lavoie
University of Ottawa



Outline

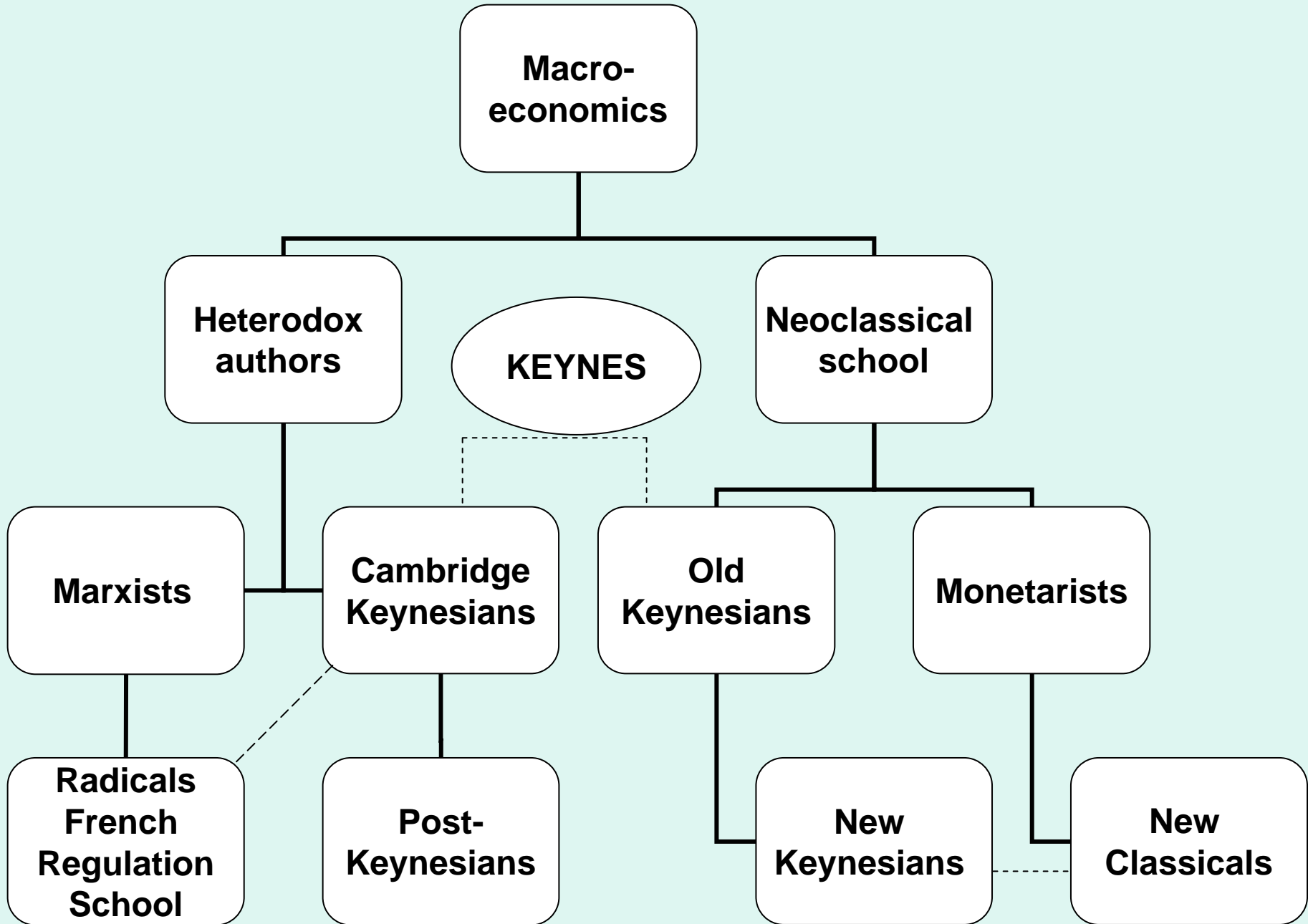
- 1A. We set post-Keynesian economics within a set of multiple heterodox schools of thought, in opposition to mainstream schools.
- 1B. We identify the main features (presuppositions) of heterodoxy, contrasting them to those of orthodoxy.
- 2. We go over a brief history of post-Keynesian economics, in particular its founding institutional moments.
- 3. We identify the additional features that characterize post-Keynesian economics relative to closely-related heterodox schools.
- 4. We delineate the various streams of post-Keynesian economics: Fundamentalism, Kaleckian, Kaldorian, Sraffian, Institutionalism.
- 5. We discuss the evolution of post-Keynesian economics, and some of its important works over the last 40 years.
- 6. We mention some of the debates that have rocked post-Keynesian economics.

PART I

Heterodox schools

Heterodox vs Orthodox economics

- NON-ORTHODOX PARADIGM
- HETERODOX PARADIGM
- POST-CLASSICAL PARADIGM
- RADICAL POLITICAL ECONOMY
- REVIVAL OF POLITICAL ECONOMY
- ORTHODOX PARADIGM
- DOMINANT PARADIGM
- THE MAINSTREAM
- NEOCLASSICAL ECONOMICS



Orthodox vs Heterodox economics

- Post-Keynesian economics is one of many different heterodox schools of economics.
- Heterodox economists are dissenters in economics.
- Dissent is a broader concept than heterodoxy.
- One can distinguish between orthodox dissenters and heterodox dissenters.
- Orthodox dissenters may become heterodox dissenters; or orthodox dissenters may become mainstream; or they may remain orthodox dissenters.
- Heterodox dissenters are unlikely to become mainstream. Their position in the pecking order will always be precarious.

Examples of orthodox dissenters

- Milton Friedman in the 1950s (became mainstream in the late 1960s)
- The New Consensus view (has become mainstream in central banks)
- Bénassy/Malinvaud (disequilibrium Keynesianism) in the 1970s
- H.A. Simon, Coase, Akerlof, Stiglitz
- New Institutionalism
- Post-Walrasian economics (à la Colander), multi-agent modelling, behavioural economics, experimental economics

Heterodox schools in economics

- Post-Keynesians
- Sraffians (Neo-Ricardians) ?
- Circuitists, Berlin school of monetary economics
- Marxists, Radicals
- Structuralists (Development, Latin-American school, Furtado, L. Taylor))
- French Regulation School, Social Structure of Accumulation (SSA)
- Institutionalists (Old)
- Social economics and Humanistic economics
- Anti-Utilitarianism (MAUSS)
- Economists of « conventions »
- Schumpeterians and Evolutionary Economics
- Feminist economics
- Ecologists (Ecological Economics)

- And no doubt many others (Ghandi economics, Henry George, Gesell, Neo-Austrians, etc.)

What do all these heterodox schools have in common?

- Differences between schools of thought and their relative ranking have a lot to do with the sociology of the profession.
- Still, in my opinion there are broad features that characterize heterodox and orthodox schools.
- These are called the presuppositions of research programmes by philosophers of science: they are things that cannot be questioned

The contours of Post-Keynesianism

- One of the difficult question, that will concern us at all times, is to identify the exact content of post-Keynesianism.
- Should the Sraffians be included?
- Are the post-Keynesians part of the Regulation school or is the Regulation school part of post-Keynesianism?
- What are the links between post-Keynesians and Radical Marxists?
- Contours change with time and with the individuals involved.
- To some extent, labels are necessarily arbitrary.
- Personally, I prefer a « broad church » approach.

Schools of thought and centrifugal forces vs centripetal forces

- Centrifugal forces
 - Explosion of published/on line material
 - Hyper-specialization
 - Product differentiation
 - Individualities, debates over trivial issues, disagreements
- Centripetal forces
 - Rapprochements, interactions
 - Minorities in peril, intellectual curiosity
 - Organizations (ICAPE, AHE, SHE, PEF)
 - Letters: Fred Lee, Post-autistic economics network

Presuppositions of the heterodox programme vs those of the mainstream

	Paradigm	
Presupposition	Heterodox schools	Mainstream or Neoclassical schools
Epistemology	Realism	Instrumentalism
Ontology/Method	Holism, organicism, class analysis	Individualism
Rationality	Reasonable rationality	Hyper model-consistent rationality Optimizing agent
Economic core	Production, growth	Exchange, scarcity
Political core	Regulated markets	Unfettered markets

An example:

Reasonable rationality vs hyper rationality in various heterodox schools

- Reasonable rationality, based on habits (PK, conventions)
- Instrumental rationality, the impossibility of dealing with all the information (Herbert Simon), epistemic uncertainty
- Non-ergodicity (Davidson, Shackle), ontological uncertainty
- Ecological rationality (in psychology)
- Non-compensatory choices (in ecological economics, and marketing)

Holism: Some crisis-related macro paradoxes

Paradox of thrift (Keynes)	Higher saving rates lead to reduced output
Paradox of costs (Kalecki)	Higher real wages lead to higher profit rates
Paradox of public deficits (Kalecki)	Government deficits raise private profits
Paradox of debt (Steindl)	Efforts to de-leverage might lead to higher leverage ratios
Paradox of tranquillity (Minsky)	Stability is destabilizing
Paradox of liquidity (Nesvetailova)	Efforts to become more liquid transform liquid assets into illiquid ones
Paradox of risk (Wojnilower)	The possibility of individual risk cover leads to more risk overall

PART II

History of post-Keynesian
economics

Key moments in the history of PK Macroeconomics

- The Circus, before 1936 and the GT.
- JR: Introduction to the theory of employment (1937)
- JR: The Accumulation of capital (1956) and Kaldor's article on income distribution (1956)
- The Capital controversies, 1960s and early 1970s, with Harcourt's account (1969, 1972)
- The realization by S. Weintraub (1961) that he and Cambridge authors had the same views on price inflation and money endogeneity
- The visit of JR to the United States in December 1971
- The Eichner and Kregel article in JEL 1975
- The founding of the CJE and the JPKE in 1977 and 1978, and of ROPE in 1989.
- The Trieste Summer school, 1980-1992
- Great Malvern ROPE conferences (1987-1996) and the Post Keynesian Conferences and Summer schools, Knoxville and Kansas City (1988-2008), Berlin Summer school (2008-9)

The Circus, before 1936 and the GT, and JR's *Introduction to the theory of employment* (1937)

- Keynes's banana parable, widow's cruse 1929
- Keynes's General Theory 1936
- The Revolutionary character of the GT, underlined by the Circus and J. Robinson
- Kalecki: 1933 (cycle), 1937 (principle of increasing risk), 1939 (real wages), 1942 (A theory of profits)
- Kaldor 1934: multiple equilibria, instability, path-dependence

JR: The Accumulation of capital (1956) and Kaldor's article on income distribution (1956)

- The Accumulation of capital: Greatest book, that covers the dynamic long-run implications of Keynes, inspired by Harrod, Kalecki, Myrdal, the revival of classical questions, Sraffa's introduction to Ricardo's Principles, Wicksell (Kahn): growth, choice of technique, money
- *A neo-Keynesian or Cambridge* theory of income distribution, based on macroeconomics, instead of marginal productivity
- First awareness that the theory being discussed at Cambridge is different from that in the US.

The Capital controversies, 1960s and early 1970s, with Harcourt's account (1969, 1972)

- Robinson's 1953-4 article on the production function.
- Sraffa's 1926 article on the shape of Marshallian cost curves.
- Sraffa's 1960 book (which few understood).
- The UK Cambridge work on fixed-coefficients model had some mirror image in the MIT Cambridge work on activity analysis, also based on fixed coefficients
- Robinson, Garegnani, 1961, visit MIT and Samuelson (1962) answers JR's criticisms [« for several years, everyone (except Piero Garegnani) was somewhat baffled»]
- QJE symposium 1966, Samuelson backtracks: defeat is conceded
- The rate of return on capital cannot be a measure of its « scarcity ».
- Harcourt's JEL 1969 account of the controversies.
- The Italo-Cambridge school: Full awareness that it constitutes a school of thought different from « Bastard Keynesianism ».
- Early 1970s: peak of Sraffian's influence, as a substitute for orthodox Marxism and the neoclassical mainstream.

Weintraub links up with the UK Cambridge

- In 1958 Weintraub writes a book that breaks away from the neoclassical synthesis.
- In 1961 he realizes that his views on price inflation (cost inflation) and money (endogenous money, rejection of the quantity theory of money) are consistent with those of Robinson and Cambridge (Kahn/Kaldor testimonies at the Radcliffe Committee).
- Eventually he will realize that his equations are similar to those of Kalecki (the KKR Kalecki-Kaldor-Robinson eq.)
- He links up with Cambridge.
- Kregel, a student of Davidson, studies at Cambridge, 1969-.
- Davidson, a former graduate student of Weintraub, spends a sabbatical at Cambridge in 1970-1971, carrying there the draft of his book, *Money and the Real World* (1972). Basil Moore was also visiting Cambridge that year.

The visit of JR to the United States in December 1971

- This is another key moment, as Robinson's lecture at the 1971 AEA, whose President was J.K. Galbraith, give an impetus to non-Radical heterodox economists in the USA to organize themselves.
- This was mainly done under the leadership of Alfred Eichner (*The Megacorp and the Oligopoly*, 1976; *A Guide to Post-Keynesian Economics*, 1979)
- A book, edited by Edward Nell (1980), eventually came out of the 1971 AEA meeting, subtitled, *Essays in the Revival of Political Economy*
- Kregel's book 1973: *The Reconstruction of Political Economy*.
- Hyman P. Minsky, 1975: *John Maynard Keynes, or financial Keynesianism, or Wall Street Keynesianism*

The Eichner and Kregel article in JEL 1975

- Eichner and Kregel claim that a new *Paradigm* has been born, called *Post-Keynesian economics*.
- They summarize the new school with the following characteristics:
 - A concern with growth and cycles;
 - A concern with history and time;
 - A neo-Keynesian/institutional theory of income distribution;
 - Incomplete information, fundamental uncertainty;
 - Imperfect markets with oligopolies, and constant marginal costs;
 - A monetized production economy;
 - Saving adjusts to discretionary expenditures (investment);
 - Purpose: to explain the real world as observed empirically.

The founding of the CJE and the JPKE in 1977 and 1978

- The institutionalization of PK economics continued with the creation of at least two journals.
- The *Cambridge Journal of Economics*, created by young scholars at Cambridge, founded on the tradition of Marx, Keynes, Kalecki, Robinson and Kaldor.
- The *Journal of Post Keynesian Economics*, edited by Weintraub and Davidson, based on Keynes, Robinson, Kaldor, Kahn, Kalecki, Lerner, Harrod, Galbraith, Minsky, new Hicks.
- This was followed in 1988 by the *Review of Political Economy*, which was originally to be called the *Review of Post Keynesian Economics* (the British equivalent of the JPKE)

But Post-Keynesian associations are slow to come by

- There is still no international PKE association, and no American organization, similar to URPE or AFEE.
- In France, there is the ADEK, Association des études keynésiennes.
- Some other countries have similar Keynesian organizations (Brazil).
- The British have the Post-Keynesian Economics Study Group, now formally organized with memberships, website, etc.

The Trieste Summer school, 1980-1992

- An important defining moment has been the organization of the Trieste (Italy) Summer schools and conferences, led by Garegnani, Kregel, and Parrinello.
- The purpose of the school, besides bringing teachers and students together, was an attempt at synthesising two PK currents, the fundamentalist PK monetary approach and the Sraffian surplus approach, to build a general theory that would be an alternative to neoclassical theory.
- In a way, the school was a success, as it brought together, in a very nice environment, every year, for about ten days, many of the more senior leaders of PKE.
- However, from another angle, the school is considered as a relative failure, as little progress was made towards a rapprochement between fundamentalism PK and the surplus approach. Indeed, from one year to the next, debates kept repeating themselves between the same protagonists. Some important PK actors, notably Alfred Eichner, were never invited.

Great Malvern ROPE conferences (1987-1996)
and the Post Keynesian Conferences and Summer
schools, Knoxville and Kansas City, 1988-2008

- Other sets of PK conferences/schools
have been organized:
 - Great Malvern ROPE conferences, by John
Pheby
 - PK conferences in Knoxville, by Davidson;
 - PK conferences and summer schools, by
Wray at UMKC
 - More recently:
 - Dijon (ADEK), Bilbao, Berlin, PKESG conferences

Part III

The presuppositions of post-
Keynesian economics

Presuppositions and content (I)

- **Arestis 1996**
 - Critical realism (realistic abstractions)
 - Uncertainty and history
 - Money and finance
 - Production, prices, pricing
 - Investment, distribution, class struggle
 - Growth and cycles
 - Unfettered market forces exacerbate instabilities
- **Chick 1995**
 - Realistic abstractions
 - Irreversible historical time
 - Macroeconomic laws (rejection of methodological individualism, class conflict, conventions)

Presuppositions and content (II)

- **Pasinetti 2005**

- Realism
- Internal consistency
- Production
- Historical time, non-ergodicity, uncertainty
- Macro before micro
- Instability
- Growth and distribution
- Deep social concerns

- **Dow 1991**

- Realism
- Organicism
- Open theories
- No dualism, pluralistic
- Monetary production economy
- Effective demand
- Business cycles and growth

Presuppositions and content (III)

- **Galbraith 1978**
- Manage the market
- Manage aggregate demand
- **Robinson 1978**
- Time
- Change
- **Davidson 1982**
- Irreversible time
- Expectations in an uncertain world
- Income distribution, power
- Tangible vs financial capital
- Income vs substitution effects
- Institutions

ESSENTIAL POST-KEYNESIAN FEATURES (Lavoie 2006)

- The principle of effective demand (demand-led economies)
- _ Both in the short and in the long run
- The importance and irreversibility of time
 - Historical time
 - Dynamics, the traverse
 - Path dependence, multiple equilibria
 - Tracking financial stocks

Two essential features

- Effective demand
 - The economy is demand-determined both in the short run and the long run; supply adapts to demand. At all times, it is investment that determines saving, rather than the converse (ex: aggregate demand has permanent effects on the NAIRU)
- Historical and dynamic time
 - We must always consider the transition from one position to another, and recognize that the conditions under which this transition occurs may affect the final position of equilibrium.

AUXILIARY POST-KEYNESIAN FEATURES

- Fundamental uncertainty
- A Production monetary economy
- Alternative microeconomics
- Pluralism of methods and theories
- Distrust in unfettered markets, pro-capitalist but controlled (humanistic socio-liberalism, a middle way? Bortis 1997)

Auxiliary features

- Fundamental uncertainty
 - The future is necessarily different from the past. The future is unknown and unknowable since decisions taken today will alter the way the future looks. The future is different from the past (non-ergodicity).
- The monetary production economy
 - Models must recognise that contracts are denominated in money; that firms and households hold assets and debts that may impose considerable financial constraints.
- Relevant and contemporary microeconomics
 - Post-Keynesian microeconomics rests on decisions of a lexicographic nature and on inversed L-shaped cost curves, with administered pricing.
- Pluralism of theories and methods
 - Reality can take several forms. As such, there are a number of different methods as well as economic theories that may appear to rival one another.

Distrust in unfettered markets

- « On the one side are those who believe that the existing economic system is, in the long run, a self-adjusting system, though with creaks and groans and jerks and interrupted by time lags, outside interference and mistakes On the other side of the gulf are those that reject the idea that the existing economic system is, in any significant sense, self-adjusting »
- Keynes, CW, xiii, p. 487 (1934)

Part IV

The various strands of post-
Keynesian economics

The Hamouda and Harcourt (1988)

3-way typology

- They identify three strands:
- The Fundamentalist (American, Marshallian)
Post Keynesians: Weintraub, Davidson, Minsky, Shackle
- The Kaleckians: Kalecki, Steindl, Asimakopulos, Eichner, Bhaduri
- The Sraffians: classicals, Sraffa, Eatwell, Garegnani, Steedman
- They admit that they don't know where to put Robinson, Kaldor, Goodwin, Godley, Pasinetti

The Arestis (1996) 3-way typology

- Marshallian PK:
 - Keynes's 2 *Treatises* (on Probability, on Money) and the *GT*
- Robinsonian:
 - (Kalecki, Marx, circuit theory)
- Institutional: *ist*:
 - (Veblen, contracts)
- However, when discussing pricing, Arestis reintroduces Leontief, Sraffa, Pasinetti, i.e., the Sraffians

Do Sraffians belong to PKE?

- Several PK methodologists argue that Sraffians should not be included within the PK school. This in my view is a mistake.
- First, Sraffians are intimately linked with PK analysis by tradition and by history. To exclude Sraffians would render incomprehensible part of PK history and evolution.
- Second, Sraffian views are not homogeneous, and they have evolved through time. Some of these views are quite amenable to a synthesis with the views of the other post-Keynesians.
- Third, Sraffians are in close agreement with other post-Keynesians on some crucial issues such as the causality between investment and saving, the role of effective demand both in the short and long run, the endogeneity of money, etc. (see Dutt and Amadeo 1990).

Arena's (1992) dominant and dissident PK schools

- According to Richard Arena, the relations between Sraffians and other members of the PK school have been strained because most of the debate over a possible synthesis has been conducted by the « dominant » actors of the two extremes, the Fundamentalist view (Davidson) based on fundamental axioms, and the « Core » view (Garegnani), based on the opinion that natural prices are impervious to short-run variations and that Sraffa's outputs are long-period centers of gravitation.
- For Arena, there is room for a synthesis when the « dissident » PK views are taken into account. This means the Sraffian version of Pasinetti and Roncaglia (the so-called Ricardian and Smithian Sraffians views), where relative prices change all the time; and the Kaleckian view, with cost-plus pricing or benchmark pricing.

Further thoughts about the Sraffian contribution

- It is best to see the standard Sraffian price theory as an idealized administered pricing theory, that abstracts from imperfect information, past disequilibria, non-uniform profit rates, debt structures, etc. Those who are interested in relative prices can introduce these complications at will.
- Furthermore, modern Sraffians do not assume anymore that the economy is always running at normal or full capacity. Most of them don't even assume that the economy is running at normal capacity in the long run. From that angle, there is no difference with the other post-Keynesians.
- Finally, it is often claimed that Sraffians do not take into account financial and monetary factors. But what has been the contribution of the other post-Keynesians in this regard, with respect to pricing or relative prices? At least, the Sraffians make the claim that relative prices and real wages are being affected by the normal level of the rate of interest, through its impact on the normal profit rate, that is, the target rate of return which is imbedded in the pricing markup.

The Lavoie (2008) 5-way current typology

- **Fundamentalist Keynesians:**
 - Money, liquidity preference, uncertainty, methodology
 - Davidson, Kregel, Chick, Dow
- **Kaleckians:**
 - Pricing, growth, cycles, employment, profits,
 - Sawyer, Bhaduri, Dutt, Blecker, Fazzari
- **Sraffians:**
 - Relative prices, capacity, normal profit rate,
 - Kurz, Garegnani, Nell, Pasinetti
- **Institutionalists:**
 - Institutions (firms, banks)
 - Fred Lee, Peter Earl, Arestis
- **Kaldorians:**
 - Growth, money, international, productivity
 - Godley, Thirlwall, McCombie
- **Ecclectic authors go across all or at least two of the categories, for instance Nell, Harcourt, Dutt, Wray, Lavoie, younger PKs**

INFLUENCES ON WYNNE GODLEY

OXFORD

Roy Harrod

Foreign trade multiplier
Stock-flow norms

CAMBRIDGE

Nicholas KALDOR

Monetary economics
Regional policies
Open economy
Disequilibrium

OXFORD

P.W.S. ANDREWS

HALL (& HITCH)
Costing, Pricing

Wynne GODLEY

James TOBIN

Portfolio theory
Adding-up constraints
Stock-flow coherence

CAMBRIDGE ECONOMIC
POLICY GROUP

1970s

Augusto GRAZIANI

Monetary circuit theory

Coutts, Godley, Nordhaus
«Industrial pricing» 1978

GODLEY AND CRIPPS

«Macroeconomics»

1982

LEVY INSTITUTE, 1990s

CERF, 2000s

Forecasting
SFC models

Part V

The evolution of post-Keynesian
economics and some of its key
works

The evolution of post-Keynesian theory

- 1930s: Unemployment
- 1950s: the neo-Keynesian models of growth and distribution
- 1960s: the capital controversies
- 1970s: the theory of the firm, definition of the school
- 1980s: Kaleckian models of growth, endogenous money
- Late 1980s early 1990s: attempts at synthesis (textbooks)
- 1990s: methodology (critical realism), history of economic thought
- 2000s: economic policy, empirical work, new attempts at synthesis ?

Key moments in recent PK macroeconomic theory

- 1970: Kaldor's *Lloyds' Bank Review* article on endogenous money, followed by Moore's 1988 book.
- 1970-1980s Minsky's work on financial fragility and the flow consequences of stocks of assets and debts.
- 1978 Nell's paper on effective demand and the neoclassical and Kaleckian labour market.
- Early 1980s: Rowthorn, Dutt, Taylor, Bhaduri and Marglin on the Kaleckian growth model.
- 1979 Thirlwall's Law: The balance of payments constraint on growth.
- 1996 Godley's Levy working paper on a complex stock-flow consistent model that integrates the real and the financial side, in particular the stock market.
- 2001 McCombie's article on the neoclassical production function, which provides the final touch to the Cambridge capital controversies.

The McCombie (2001) « reductio ad absurdum » argument that destroys the neoclassical instrumentalist defense against attacks on the neoclassical production function ...

- McCombie (2001) takes two firms i each producing in line with a Cobb-Douglas function
- $Q_{it} = A_0 L_{it}^{\alpha} M_{it}^{1-\alpha}$
- With $\alpha = 0.25$ (labour output elasticity).
- Inputs and outputs are identical: there is no aggregation problem (the 1971 Fisher problem is avoided).
- If L and M grow through time, with no technical progress, with some random fluctuations, the econometric regression based on the constructed physical data will yield an α coefficient close to 0.25 as expected.
- In this case, as the estimate is based on physical data, there is no problem.

However

- Start again with the same two firms, without technical progress, and try to estimate an aggregate production function using deflated monetary values, as must be done in macroeconomics and often in microeconomics. To do so, assume, by construction, that firms impose a markup equal to 1.33 ($\theta = 0.33$) with $P = (1+\theta)WL/Q$, which implies that the wage share is 75%. In this case the regression will yield an estimate of the α coefficient that turns out to be 0.75.
- Thus, we started with production functions and physical data according to which the labour output elasticity is 0.25. Yet, the estimated aggregate production function (in deflated monetary terms) tells us that this elasticity is 0.75.
- In other words, estimates of aggregate production functions (both at the industry or macro levels) measure wage shares and profit shares, not the elasticities of factors of production.
- These aggregate production functions are useless to provide any information about the kind of technology in use or about elasticities. All empirical work based on these functions is therefore meaningless. Neoclassical studies are artefact.

Part VI

Some of the controversies that
have rocked post-Keynesian
economics

A partial list

- The definition of PK economics.
- The (lack of) coherence of PK economics?
- The generality of fundamental uncertainty and non-ergodicity.
- Marshallian or Kaleckian micro foundations?
- Wage-led vs profit-led economies?
- Actual vs normal rate of capacity utilization in the long run?
- Debt-led vs debt-burdened economies?
- Financialization and managerialism
- Flexible vs fixed exchange rate regimes?
- Horizontalism vs structuralism in monetary economics

The definition of PK economics

- There is still two spellings: post-Keynesian and Post Keynesian.
- Some authors (Henry 1993) have suggested to use « post-classical », in opposition to neoclassical, and as means to recall that PK economics is in part a revival of classical concerns and methods, which goes beyond Keynes.
- « Post-Keynesian » started to be used by Joan Robinson as early as 1959, and it was picked up by Kregel (1973) and Eichner, and most UK writers.
- « Post Keynesian » was proposed by Weintraub and Davidson (1978) as something broader than « Cambridge Keynesianism ». It has been picked up mainly by US writers. It is now more associated with the Fundamentalist strand.

The (lack of) coherence of PK economics?

- PKE, and other heterodox schools, have often been accused of lacking coherence.
- Davidson (2003-04) himself makes this claim.
- The only coherence would be in the unity against neoclassical theory.
- The biggest attack on this has come from Walters and Young (1997), on definitions, methods, pricing, uncertainty, money. There have been responses by Arestis, Sawyer, Dunn.
- PK are a bit defensive about coherence. One answer has been to exclude Sraffians.
- In my view, coherence can be seen at a deeper level. Disagreements exist between all scholars and are normal.

Deeper coherence: The concept of capital

- **Cambridge authors have a common understanding of the meaning of capital.**
- Sraffians and Pasinetti understand capital as a produced good (a basic commodity), which is not a primary factor of production.
- Robinson has developed a measure of capital that she called « real capital », which equals the value of capital in terms of consumption goods divided by the real wage.
- Harrod's definition of neutral technical progress incorporates the notion that capital is reproducible, and that its process of production is itself subject to technical change.
- Rymes's measure of technical progress is fully compatible with Robinson's definition of real capital and Harrod's view of technical progress. The rate of technical progress in the consumption sector is dependent on the rate of technical progress in the investment sector, but not vice-versa.
- Kaldor's claim that one *cannot* distinguish between a movement along the production function and a shift of the production function also arises from the claim that capital is not a primary factor of production.
- Solow and Samuelson did not understand Robinson's real capital definition, claiming that she was complicating matters, accusing her of relying on some kind of labour-value theory; nor could they understand Kaldor's point.
- But it turns out that Robinson was right: to compute the growth rate of capital as a primary factor of production one must deflate the growth rate of capital by some index of technical progress, and this is why « real capital » is obtained by dividing it by the real wage of labour (an index of productivity).

The generality of fundamental uncertainty and non-ergodicity

- Fundamental uncertainty: nihilistic Shackle consequences? Does it imply instability (only with *crucial* decisions)?
- Does it entail stability instead, with rules and conventions that hold until some event modifies the convention (Heiner 1983)?
- What is the link between Austrian/Knightian uncertainty and PK uncertainty?
- What is the link of sun-spot equilibria, complex dynamics, hysteresis, and path dependence with fundamental uncertainty? Davidson (1993) sees none. Barkley Rosser (1998) in contrast sees a tight link. Is non-ergodicity necessary for fundamental uncertainty?

Marshallian or Kaleckian micro foundations?

- Another pseudo debate.
- PKE of all strands have used one or the other at some time.
- Marshallian foundations better to argue with neoclassical authors, or to do history of thought theorizing around Keynes?
- Do they entail the acceptance of marginal productivity theory?
- Kaleckian foundations more realistic?

Wage-led vs profit-led economies?

- A debate initiated by the Bhaduri and Marglin (1990) and Kurz (1990) articles.
- The theoretical debate has been pretty well cleared up (parameter conditions necessary for one or the other regime, etc.)
- The empirical debate still goes on, and is very lively, with results not always consistent.
- The initial consensus was that the more small open economies are likely to be profit-led.

Actual vs normal rate of capacity utilization in the long run

- Kaleckian models usually are not constrained to bring back the actual rate of capacity utilization to its normal rate in the long run.
- Some authors, mainly Sraffians and Marxists, object to this, ever since the mid-1980s (Skott, Shaikh).
- Various mechanisms have been put in place to bring back the actual rate to the normal rate.
- Do these mechanisms question the main Kaleckian results? Some do, others don't.
- Is it a foregone conclusion that coherence requires long-run actual rates to equal normal rates?

Debt-led vs debt-burdened economies?

- Do debt ratios rise in the upswing, or they rise in the downswing (pro-cyclical or counter-cyclical).
- This is linked to Minsky's financial fragility hypothesis, where it is necessarily pro-cyclical (entrepreneurs and banks agree to take on more debt, which becomes unsustainable, thus causing the downturn).
- Myron Gordon argues instead that when entrepreneurs have gone through a series of successful years, they become more prudent, to protect their accumulated wealth, thus causing a downturn.
- New models show that it could be one or the other.
- More empirical work needed?

Financialization and managerialism

- Is it still relevant to start off the analysis assuming managerial capitalism, à la J.K. Galbraith ? Or are we in a new world of finance capitalism where firm managers have lost most of their power? But then what about all the financial scandals where managers have ripped off shareholders and the firm (Enron, AIG, GM, banks)?
- What are the implications of financialization for macroeconomics? Has it contributed to the slowdown of economies? Has it contributed to the rising share of profits?
- A debate that also concerns other heterodox schools of thought.

Flexible vs fixed exchange rate regimes?

- Just like neoclassical authors, PKE can't agree on what ought to be the best regime.
- Some favour fixed exchange rates because it provides less uncertainty.
- Others favour flexible exchange rates because it gives more flexibility to the monetary authorities and helps to make the interest rate truly exogenous.
- But Latino American authors usually point out that flexible exchange rates for countries with foreign debt denominated in foreign currencies provides less flexibility.

Horizontalism vs structuralism in monetary economics

- This is a debate that has generated **a lot** of attention.
- Horizontalists believe that central banks can control short-term interest rates and cannot control monetary aggregates.
- Structuralists claim that central banks cannot truly control interest rates and that they can restrain liquidity through open market operations.
- The debate has somewhat petered out with the new procedures adopted by central banks, which sustain the horizontalist position.
- More about it on Monday!