Distribution and Growth

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1. Introduction

- Comments on history of economic thought
  1. Classical political economy in UK – Smith, Ricardo, Malthus and Mill – examined how the distribution of income between classes, capitalist, workers, landlords, and how it interacted with economic growth driven by capital accumulation, technical change and endogenous population growth; growth, stationary state?
  2. Marx, stronger emphasis on distribution, capitalists and workers, class struggle, economic growth, crises, reserve army and unemployment; the tradition continues
  3. Marginalists, resource allocation and role of prices, marginal productivity theory of distribution, technology, endowments, market prices
  4. Keynes, return to macro, unemployment equilibrium – short run, distribution, Kalecki, Marxian background, importance of class and distribution, business cycles, from aggregate supply examined earlier (Malthus and Marx possible exceptions) to aggregate demand
  5. Harrod and Domar, Kahn, Kaldor, Robinson, Steindl extending Keynes and Kalecki to longer run and capital accumulation, tech change; sometimes distribution, sometimes classes
  6. Neoclassical theory, Solow, Swan, full employment growth, marginal productivity theory, elasticity of substitution; optimization, OG, infinite horizon; new or endogenous growth, some attention to inequality and distribution, mainstream theory

1. Introduction, cont.

- Inequality
  - Inequality of income and other things; focus on income; relation to wealth
  - Types of distribution and inequality; functional versus personal, vertical versus horizontal; here focus on vertical, but horizontal is closely related
  - Is inequality a Bad Thing? Egalitarian, desert rights and freedoms perspectives, social welfare, contracts, virtue
  - Inequality: absolute and relative
  - Determinants of inequality: power, institutions, markets, technology
    - Exogenous versus endogenous

1. Introduction, cont.

- Growth
  - Per capita or total production and income growth rates
  - Is Growth a Good thing?
    - Distribution and growth
    - Happiness, income and growth
    - Employment, functionings and growth
    - Growth and ethics
  - Theorizing about growth
    - Aspects – capital accumulation, technological change, population, institutional change, structurql change
    - Statics versus dynamics
    - Time and different runs

1. Introduction, cont.

- Outline
  1. Introduction
  2. Simple framework
  3. Basic models
  4. Dynamics
  5. Modifying the general framework
  6. Embedding in a socio-political context

2. A simple framework

- The framework based on the following assumption, some substantive, most simplifying:
  - one good
  - closed economy
  - no government fiscal activity
  - two homogeneous inputs, capital (same as the output and non-depreciating), and labor
  - capitalist one with only two classes, capital is owned by capitalists who receive profits from organizing production employing workers who can be hired and fired instantaneously, and receive wages
  - explicit discussion of financial issues is eschewed
  - Given input-output relations

2. A simple framework, cont.

- Equations

$PY = PC + P\dot{K}$

$PY = WL + rPK$

$a_1 \leq K/Y$, a_1 is minimum capital-output ratio

Accounting identities and definitions

$1 = ca_0 + \frac{g}{u}$, a_0 is labor-output ratio, g=$\dot{K}/K$, $c = C/L$, $u = Y/K$

$1 = wa_0 + \frac{r}{u}$, w=W/P

Two equations in five variables, including two showing distribution and one growth

Three equations needed to complete a model or closure

Different structures, different models

3. Basic models

- Classical-Marxian model
  - Equations

$g = s_c r$ from $g^S = s_c r$ and $g^S \equiv g^I = g$

$u = \frac{1}{a_1}$, or $u = \bar{u} < 1/a_1$

$w = \bar{w}$ or $\omega = a_0 w = \bar{\omega}$

$1 = w a_0 + r a_1$

$1 = c a_0 + g a_1$

  - Solution
  - Implications: growth constraint
  - Changes in w, s_c, a_0, a_1
  - Distribution and growth

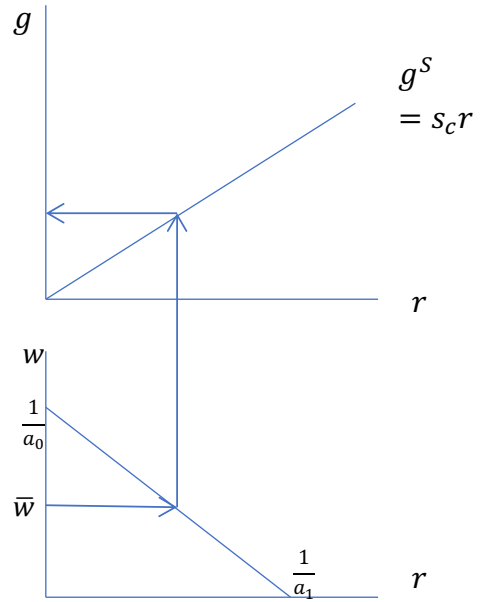

Figure 1. The classical-Marxian model

3. Basic models, cont.

- Post-Keynesian models: Neo-Keynesian model
  - Equations

    $g = s_c r$ as before

    $u = 1/a_1$,or $u = \bar{u} < 1/a_1$

    $g = g(r)$, with $g^I = g(r)$ and $g^I = g^S = g$

    $1 = wa_0 + ra_1$

    $1 = ca_0 + ga_1$
  - Equilibrium
    - Market clearing through changes in *w*
    - *Stability*
  - Implications: growth constraint
  - Changes in $g\ function, s_c, a_0, a_1$
  - Distribution and growth

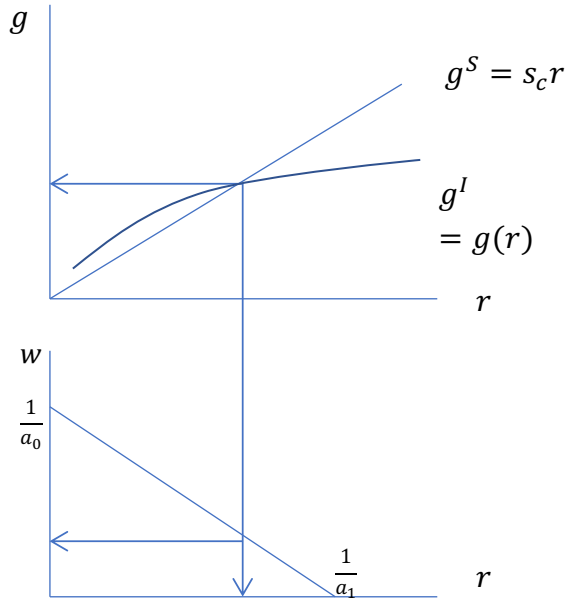

Figure2. The new-Keynesian model

3. Basic models, cont.

- Post-Keynesian models: Kalecki-Steindl model, excess capacity
  - Equations

  $g = s_c r$ as before

  $P = (1+z)W a_0$ or $w = \frac{1}{(1+z)a_0}$ or $r = \frac{z}{1+z}u$

  $g = g(r,u)$ or $g = g(u)$ or $g = \alpha_0 + \alpha_u(u - \bar{u})$
  - Solution
  - Stability
  - Implications: growth constraint
  - Changes in z, g functions s_c, a_0, a_1
  - Distribution and growth
  - Bhaduri-Marglin, $g = g(\pi, u)$, wage-led, profit-led

  $\pi = z/(1+z)$
  - Harrodian instability
  - Endogenous capacity utilization criticisms

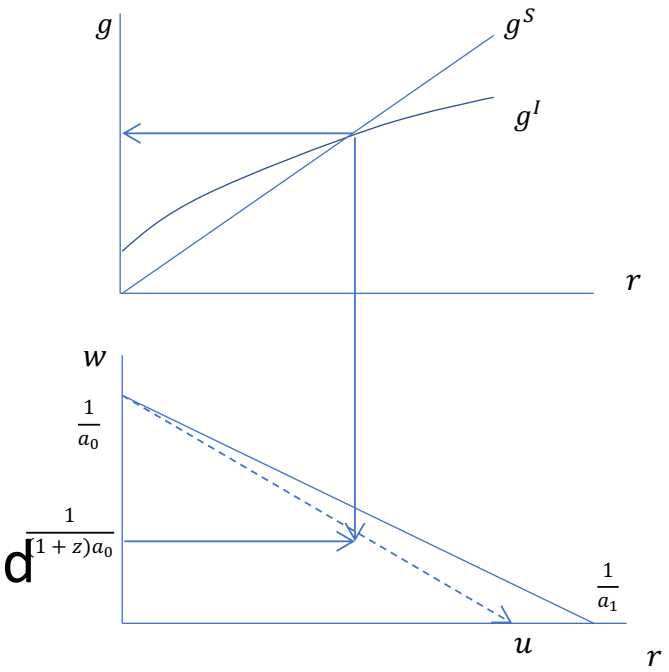

Figure 3. The Kalecki-Steindl model

3. Basic models, cont.

- Neoclassical or other full-employment model
  - Equations

$g = s_c r$ from $g^S = s_c r$ and $g^S \equiv g^I = g$

$u = 1/a_1$ or $u = \bar{u} < 1/a_1$

$g = n$

$1 = wa_0 + ra_1$

$1 = ca_0 + ga_1$

  - Solution
  - Wage adjustment and investment adjustment interpretations
  - Implications
  - Effects of changes
  - Growth and distribution

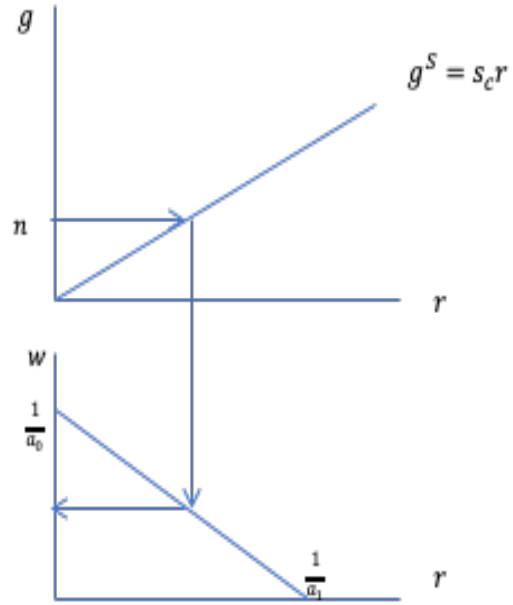

Figure 4. The nreolassical model

3. Basic models, cont.

- Sraffian supermultiplier model
  - Equations

$w = \bar{w}$

$g = -c_c + s_c r$

$\bar{g}^c = g$

$g = \alpha_0 + \alpha_u(u - \bar{u})$ with $\alpha_0 = \bar{g}^c$

$r = \boldsymbol{\pi} u$

  - Implications
  - Effects of changes
  - Growth and distribution

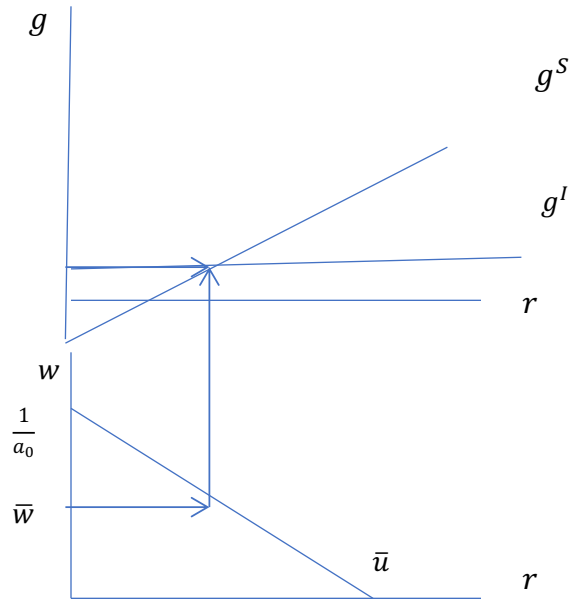

Figure 5. The supermultiplier model

3. Basic models, cont.

- Concluding comments on basic model
  - Epistemology: structuralist framework
  - Ontology: model closure equations and implied stories
  - Relation to neoclassical approach: optimization and methodological individualism
  - Strengths: structures, alternatives, comparisons; theory and empirics
  - Excludes many issues and uses a specific framework
    - Explicit dynamics: long-run equilibrium
    - Simple framework, assumptions noted
    - Stocks and flows and stock-flow consistent framework
    - circuit of capital framework
    - Models and reality not realistic models for explaining, but understanding some aspects of it

4. Dynamics

- Dynamics behind long-run equilibrium and extensions to deal with changes in parameters examining their dynamics.
  - Use of short and long runs, as well as other runs
  - Strict boundaries between different models can get blurred
- Dynamics of investment and consumption
  - Dynamics of investment and Harrodian instability
    - Start with Kalecki-Steindl model with $g = s_c r$, $r = \boldsymbol{\pi} u$, $g = \alpha_0 + \alpha_u(u - \bar{u})$
    - SR, α_0 given, solves for $u = (\alpha_0 - \alpha_u \bar{u})/(s_c \pi - \alpha_u)$.
    - LR dynamics $\dot{\alpha}_0 = \Theta[g - \alpha_0]$ implies $\dot{\alpha}_0 = \Theta \alpha_u [u - \bar{u}]$ - Harrodian instability
  - Dynamics of consumption
    - Start with KS-supermultliplier model with $w = \bar{w}$, $g = -c_c + s_c r$, $g = \bar{g}^c + \alpha_u(u - \bar{u})$
    - SR, c_c given, solves for $u = (\bar{g}^c + c_c - \alpha_u \bar{u})/(s_c \pi - \alpha_u)$ with $r = \boldsymbol{\pi} u$
    - LR, $\hat{c}_C = \bar{g}^c - g$, implies supermultiplier model with $u = \bar{u}$, $\bar{g}^c = g$
    - Growth and distribution, average and LRE effects of change in *W*
    - Other variants.

4. Dynamics, cont.

- Dynamics of distribution
  - Dynamics of *w* and *z.* Examples, $\widehat{w} = \Theta[g - n]$ or $\dot{\pi} = \Theta[u - \bar{u}]$
  - Goodwin model with *w* dynamics starting from CM model. Cycles
- Dynamics of distribution and aggregate demand
  - Skott (1989), three runs, output adjustment, capital adjustment and population growth; cycles
  - Dutt (1992) combining KS and NK with wage and price dynamics
  - Wage and investment dynamics (desired investment and slow adjustmemt) in Assous and Dutt (2013). Multiple equilibrium and hysteresis.
  - Comments on wage-led and profit-led cases

5. Modifying the general framework

- Productivity growth and technical change
  - Long history of interest in productivity growth and technical change
  - Broader understanding of technical change to include, for instance, changes in social relations, and technical change may not imply changes in input-output ratios
  - Changes in a_0, a_1, rate of decline of a_0, given by $\boldsymbol{\tau}$
  - Determinants: growth, wage share, wage growth, tightness of labor market, monopoly power, etc.
  - Effects: with unemployment, no automatic increase in growth; depends on distributional and demand parameters,
  - aggregate demand and aggregate supply
  - capital productivity and the falling rate of profit

5. Modifying the general framework, cont.n

- Money and inflation
  - Endogenous money versus exogenous money and the quantity theory; social conflict, cost, aggregate demand pressures
  - Wage dynamics, price dynamics and real wage dynamics with targets and demand pressures
  - Endogenization of targets, Dutt (1992); crises
  - Exogenous money and distributional dynamics, Taylor (1991)

5. Modifying the general framework, cont.

- Finance and debt
  - Marx, Keynes and Minsky, financialization
  - Different models closures, creditors and debtors, which assets and how modeled, financial-real interactions; ex: demand, distribution; stock-flow consistent models
  - Financial decisions of firms
    - Finance for working capital, investment
    - Firm debt, equity, financial returns versus real returns
    - Goals of firms
    - Higher internal saving has ambiguous effects: reduces demand, but reduces debt and increases investment; increase in debt and instability by reducing investment
    - Effects of changes in interest rates and stock prices; credit availability
  - Government borrowing, growth and distribution
    - Classical Marxian models, reduce growth becayse of tax payments, worsens distribution
    - Kalecki-Steindl model, demand, growth, investment, capacity utilization
  - Consumer debt
    - Short and long cycles as in Minsky (Ryoo); instability due to increased borrowing (Hein) and interest rate increase
    - Short-run expansion and possibility of long term reduction due to distributional changes (Dutt)

5. Modifying the general framework, cont.

- Distribution beyond two distinct classes
  - Worker saving and capital ownership:
    - Kaldor, Pasinetti and the Pasinetti praradox, $s_c r = n$
    - Models without full employment, and other modifications
  - Labor income of the rich
    - Managerial pay
    - Financiers
    - Framework and models – CM and KS, growth and distribution – top 1% share, Dutt, Palley
  - Third class: landlords (Pasinetti based on Ricardo), rentiers (Dutt), managers (Tavani and Vasudevan), high-skilled, low-skilled workers and education (Dutt and Veneziani)
  - Gender, ethnicity and intersectionality

5. Modifying the general framework, cont.

- Multi-sector issues
  - Sraffa, classical competition and monopoly power
  - Sectoral divisions and model closures
  - Consumption and investment
  - Agriculture, non-agriculture
  - Formal, informal
  - Technical change, manufacturing and services, increasing returns, demand composition
  - Luxury and basic goods

5. Modifying the general framework, cont.

- The open economy
  - Background: mercantilists, classical, imperialism, Keynes, development economics and structuralists
  - Extensions of earlier models
    - Effects of change in income distribution; external competitiveness, dependence of markups on international competition (Blecker)
    - Exports, technical change (Kaldor)
  - New growth determinants: balance of payments and foreign exchange; gap models, Thirlwall
  - North-South models with trade, capital flows, etc., uneven development: origins and later trends, terms of trade issues, structural differences
- Environment
  - Some models build on Ricardian land, Foley, CM model with tech change
  - PKK models with green growth, expansion with clean growrh, growth affects environment, and feedback
  - Not enough attention to distribution, too much affected by neoclassical formalizations, area which is very open, also for international linkages

6. Conclusions and embedding in social and political context

- Many different approaches and models – pluralism
- Growth theories in heterodox tradition emphasize uncertainty, power, institutions, mostly missing or inadequately deal with in neoclassical models
- Importance of aggregate demand as well as aggregate supply, financial and real factors integrated – Solow
- Distribution is central; despite some contributions, not so in neoclassical models
- Epistemologically departs from straightjacket of optimizing individuals, freedom to analyze issues of real significant
- Embedding in a broader system; parameters depend on social and political context, analysis can be based on dynamic models or on speculative verbal analysis with effects shown by models. Example: power, inequality and growth; determinants of power and changes in power; consequences of these changes and feedback effects.