Employment and Income Distribution from a Classical-Keynesian point of view Some tools to ground a normative analysis

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Two unambiguous facts:

- A rise in the profit share.

Which profits 'needs' a system?

Two unambiguous facts:

- An increasing 'financiarization' of the economies.

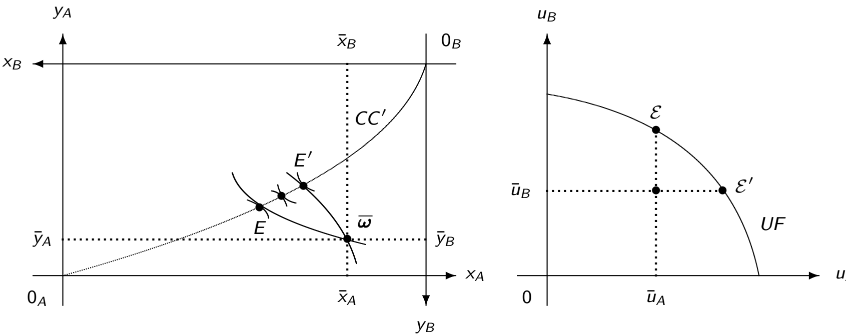
Is there a 'necessary' degree of finance?

- It is difficult to find replies in dominant economic theory.

Wealth/Income distribution

Wealth distribution

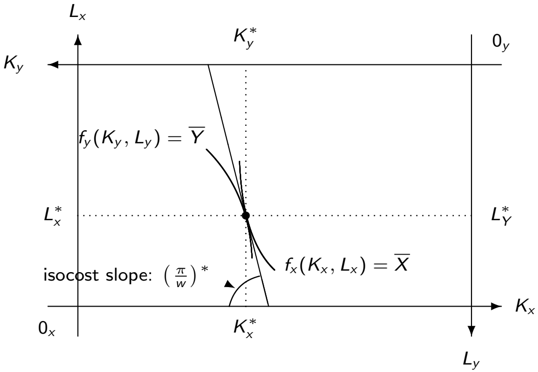
$\Rightarrow$ Pure exchange economy



Wealth/Income Distribution

Income distribution

$\Rightarrow$ Production and Exchange economy



Given final quantities, $\bar{X}$ and $\bar{Y}$, income distribution is univocally specified.

An alternative approach

Mainstream normative analysis: based on the notion of **optimality**.

Alternative approach: the 'modern' Classical approach

Sraffa (1960),
Garegnani (1983, *AER*; 1984, *OEP*),
Pasinetti (1981, 2007)

$\Rightarrow$ normative analysis based on the notion of **necessity**.

Analytical framework

- C final commodities, produced by labour and capital goods;
- capital goods are produced just by labour (for simplicity);

  $\Rightarrow$ Quantity system:

$$
\left[\begin{array}{ccc|ccc|c}
0 & \cdots & 0 & 0 & \cdots & 0 & a_{1N} \\
\vdots & \ddots & \vdots & \vdots & \ddots & \vdots & \vdots \\
0 & \cdots & 0 & 0 & \cdots & 0 & a_{1C} \\
\hline
\frac{1}{T_1} & \cdots & 0 & 0 & \cdots & 0 & a_{k_1 N} \\
\vdots & \ddots & \vdots & \vdots & \ddots & \vdots & \vdots \\
0 & \cdots & \frac{1}{T_C} & 0 & \cdots & 0 & a_{k_m N} \\
\hline
a_{N1} & \cdots & a_{NC} & a_{N_k 1} & \cdots & a_{N_k C} & 0
\end{array}\right]
\left[\begin{array}{c}
Q_1 \\ \vdots \\ Q_C \\ \hline Q_{k_1} \\ \vdots \\ Q_{k_C} \\ \hline Q_N
\end{array}\right]
=
\left[\begin{array}{c}
Q_1 \\ \vdots \\ Q_C \\ \hline Q_{k_1} \\ \vdots \\ Q_{k_C} \\ \hline Q_N
\end{array}\right]
\qquad (1)
$$

$\Rightarrow$ Price system:

$$\left[\begin{array}{ccc|ccc|c}
0 & \cdots & 0 & \pi_1 + \frac{1}{T_1} & \cdots & 0 & a_{N1} \\
\vdots & \ddots & \vdots & \vdots & \ddots & \vdots & \vdots \\
0 & \cdots & 0 & 0 & \cdots & \pi_C + \frac{1}{T_C} & a_{CN} \\
\hline
0 & \cdots & 0 & 0 & \cdots & 0 & a_{Nk_1} \\
\vdots & \ddots & \vdots & \vdots & \ddots & \vdots & \vdots \\
0 & \cdots & 0 & 0 & \cdots & 0 & a_{Nk_C} \\
\hline
a_{1N} & \cdots & a_{CN} & (a_{k_1 N} - \pi_1 a_{1N}) & \cdots & (a_{k_C N} - \pi_C a_{CN}) & 0
\end{array}\right]
\begin{bmatrix} p_1 \\ \vdots \\ \frac{p_C}{p_{k_1}} \\ \vdots \\ \frac{p_{k_C}}{w} \end{bmatrix}
=
\begin{bmatrix} p_1 \\ \vdots \\ \frac{p_C}{p_{k_1}} \\ \vdots \\ \frac{p_{k_C}}{w} \end{bmatrix}. \tag{2}$$

- Condition to exclude trivial solutions:

$$\sum_{c=1}^{C} a_{Nc} a_{cN} + \sum_{c=1}^{C} \frac{1}{T_c} a_{Nk_c} a_{cN} + \sum_{c=1}^{C} a_{Nk_c} a_{k_c N} = 1. \tag{3}$$

  – the 'macro-economic' condition;
    - it express the Keynesian principle of effective demand at aggregate level;
    - It is **not** automatically satisfied!
      it is *necessary* to take care of it in each period ('institutional' problem);

- Solution for quantities:

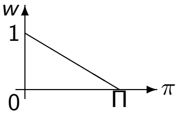
$$\begin{cases} Q_c = a_{cN} \bar{Q}_N, & c = 1, \ldots, C, \\ Q_{k_c} = \left(a_{k_c N} + \frac{1}{T_c} \cdot a_{cN} \right) \bar{Q}_N, & c = 1, \ldots, C \end{cases} \tag{4}$$

  – Keynesian principle of effective demand.

The price system

$$\begin{cases} p_c = \left[a_{Nc} + \left(\pi_c + \frac{1}{T_c}\right) \cdot a_{Nk_c}\right] w, \quad c = 1, \ldots, C, \\ p_{k_c} = a_{Nk_c} w, \quad c = 1, \ldots, C. \end{cases} \tag{5}$$

- 'Necessary' prices.
- One distributive variable to be fixed outside system (5).
- For example: π can be fixed in $[0, \Pi]$ without jeopardizing reproduction.



- Profits arise as wages do not absorb the entire net product (and vice versa), ...
- ..., unless we consider a *growing* system.

A growing system

Population, final demand and technology change:

$$Q_N(t) = Q_N(0)\mathrm{e}^{gt}, \tag{6a}$$

$$a_{cN}(t) = a_{cN}(0)\mathrm{e}^{r_c t}, \quad c = 1, \dots, C \tag{6b}$$

$$a_{Nc}(t) = a_{Nc}(0)\mathrm{e}^{-\rho_c t}, \quad c = 1, \dots, C, \tag{6c}$$

$$a_{Nk_c}(t) = a_{Nk_c}(0)\mathrm{e}^{-\rho_{k_c} t}, \quad c = 1, \dots, C. \tag{6d}$$

This changes solutions (4) and (5) in *equilibrium paths*; in particular:

$$Q_c = a_{cN}(0) \cdot \bar{Q}_N(0) e^{(r_c+g)t}, \quad c = 1, \dots, C, \tag{7a}$$

$$Q_{k_c} = \left(g + r_c + \frac{1}{T_c}\right) [a_{cN}(0) \cdot \bar{Q}_N(0)] e^{(g+r_c)t}, \quad c = 1, \dots, C. \tag{7b}$$

- This permits to define a *set* of **'natural' rates of profits**,

$$\pi_c^* = \pi_{k_c}^* = g + r_c, \quad c = 1, \dots, C. \tag{8}$$

that, if realized, provide each sector the necessary resources to expand according to its potentialities.

Characteristics of 'natural' configuration

- **Labour theory of value**
  Insert $\pi_c^* = \pi_{k_c}^* = g + r_c$ in the price equations:

$$\begin{cases} p_c = w[a_{Nc} + (1/T_c)a_{Nk_c} + (g + r_c)a_{Nk_c}], \quad c = 1, \cdots, C \\ p_{k_c} = wa_{Nk_c} \qquad c = 1, \cdots, C. \end{cases} \tag{9}$$

  Prices are thus entirely determined by *labour quantities*.
  - evident for capital goods;
  - for final good:
    - a_{Nc}, i.e. the direct labour;
    - $(1/T_c)a_{Nk_c}$, i.e. the indirect labour;
    - $(g + r_c)a_{Nk_c}$, i.e. the hyper-indirect labour.

- **Profits as a source of growth**

  In the natural configuration profits are justified insofar as the source for financing investments, not as an income of some class, typically capitalists

  (a 'social' justification for profits).

  Capitalists perceive wages for their working activity.

- **Natural profits resolve totally into wages**:

  the wages that go to pay the hyper-indirect labour.

  Income is distributed according to labour contributed

  (labour principle of income distribution).

- Remember: this is just an **ideal** configuration.

'Natural' rate of interest

- Macro-economic condition: all revenues must be spent (at aggregate level).
- Within lifetime single individuals may borrow or lend

  $\Rightarrow$ assets and liabilities (denominated in terms of commodity h)
- As *all* prices vary, any debt/credit relation should entail a distortion from the labour principle of income distribution.
- The 'natural' rate of interest re-establishes this principle:

$$i_h^* = \rho_h. \tag{10}$$

  if debts and credit relationships are denominated in h.

'Natural' relations

(NQ) output levels, identified by equations

$$\begin{cases} Q_c = a_{cN}\bar{Q}_N, \\ Q_{k_c} = [a_{k_cN} + (1/T_c)\cdot a_{cN}]\bar{Q}_N, \end{cases} \tag{4}$$

(Np) relative prices, identified by equations

$$\begin{cases} p_c = \{a_{Nc} + [\pi_c + (1/T_c)]\cdot a_{Nk_c}\}w, \\ p_{k_c} = a_{Nk_c}w. \end{cases} \tag{5}$$

(MC) full employment, entailed by the macro-economic condition

$$\sum a_{Nc}a_{cN} + \sum (1/T_c)a_{Nk_c}a_{cN} + \sum a_{Nk_c}a_{k_cN} = 1; \tag{3}$$

(Nπ) natural rates of profits, identified by equations

$$\pi_c^* = \pi_{k_c}^* = g + r_c; \tag{8}$$

(Ni) natural rate of interest, identified by equation

$$i_h^* = \rho_h. \tag{10}$$

Average natural rate of profit

- Goal $\pi_c^* = \pi_{k_c}^* = g + r_c$ is very difficult to be accomplished.
  - capitalism tend to uniform the rates of profit;
  - it is defined at a vertically integrated level.
- Apparently the r_c^*s are independent on technical magnitude.
- But overall expenditure **is** linked to ρ^* (source of income's growth).

  Re-arrange the macro-economic condition:

$$\sum \omega_c e^{(\pi_c^* - g - \rho_c)t} + \sum \omega_{k_c} e^{(\pi_c - g - \rho_{k_c})t} = 1. \tag{11}$$

It remains satisfied if the ρ_m, ρ_{k_m} are replaced by their average, ρ^*

$$\sum \omega_m e^{(\pi_m^* - g - \rho^*)t} + \sum \omega_{k_m} e^{(\pi_m - g - \rho^*)t} = 1.$$

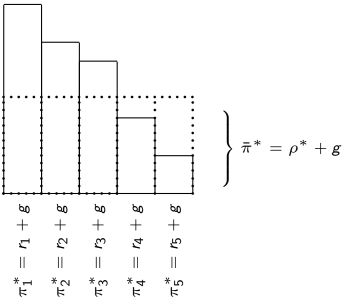
Assume that condition (11) is satisfied at time, $t = 0$; then

$$\sum \omega_m + \sum \omega_{k_m} = 1.$$

It remains satisfied if the π_m^*s are replaced by their average:

$$\boxed{\bar{\pi}^* = \rho^* + g}.$$

- $$\bar{\pi}^* = \rho^* + g, \tag{12}$$
  is that *uniform* rate of profit that, if realized, would permit to the system *as a whole* to recruit all financial resources necessary to sustain the growth of each (v. i.) sector according to its specific rates of growth.
- Financial inflows and outflows among sectors, to replicate the 'natural' outcome: a **natural' role of finance**.



Surplus of sectors 4 and 5 *need* to be conveyed to sectors 1, 2, 3.

- $\bar{\pi}^*$ represents the *minimum* return necessary to accomplish the potentialities of the system concerning growth.
- Benchmark from which profit rates cannot depart 'too much'
- *Actual* profit rate may be higher with respect to $\bar{\pi}^*$,
    - in order to facilitate the flows of financial resources among the sectors;
    - to recognize to capitalists a further revenue, to compensate the burden of the *risk* connected with the undertaking of production activity. This reduces wages correspondingly.
- Links with the Cambridge equation: $\pi = \dfrac{1}{s_c} \cdot g$

Concluding remarks

Not a conclusion, but a wish.