A KALECKIAN MODEL OF GROWTH AND DISTRIBUTION WITH CONFLICT-INFLATION AND POST-KEYNESIAN NOMINAL INTEREST RATE RULES

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•Notion that central banks control the money supply is losing its appeal;

•Rather, central banks control the rate of interest – an administered price;

•Long the domain of post-Keynesians (Keynes, 1941-1946; Robinson, Kaldor, Moore) and heterodox economists, it is now filtering into the mainstream;

- Ben Friedman:

•Two emerging approaches in PK literature regarding interest rules, what I labeled elsewhere the ‘activist’ and the ‘parking-it’ (or benchmark) approaches

- Activist: use interest rates in a discretionary way to target unemployment, output, capacity utilization, investment, or other real variables (not unlike a Taylor rule);

- Parking-it: sees interest rates more as a distributive variable; should not be used as a discretionary policy instrument; rely more on fiscal policy and abandon monetary policy: monetary policy dominance comes with disturbing consequences for output and employment.

Godley and Lavoie (2007):

"Fiscal policy is quite capable of achieving full employment at some target inflation rate. It is not clear what advantage monetary policy has, besides the fact that target interest rates can be easily altered every month or even every week. Indeed, by bringing back fiscal policy as the main tool to affect aggregate demand, monetary policy would now have an additional degree of freedom to set the real interest rate, which is a key determinant of distribution policy."

- Both approaches have some similarities:

– Both rooted in the Kaldor-Keynes endogenous money tradition;

– Both reject the central bank focus on inflation targeting and the mainstream discussion of the transmission mechanism of inflation as the result of excess demand forces; both accept the cost-push nature of inflation;

– Both question the validity of central bank policy in fighting inflation; (more so for the parking-it approach).

– Lavoie (1996, p. 537):

> "It then becomes clear that monetary policy should not so much be designed to control the level of activity, but rather to find the level of interest rates that will be proper for the economy from a distribution point of view. The aim of such a policy should be to minimize conflict over income shares, in the hope of simultaneously keeping inflation low and activity high."

• Won't be discussing the activist approach. Will be concentrating on the Parking-it Approach:

Three interest rate rules

–The Smithin Rule (real rate is or close to 0)

–The Kansas City Rule (the nominal rate is 0)

–The Pasinetti rule (the real rate is equal to the rate of growth of labour productivity)

•There are similarities among the parking-it views, but different distributional implications, and the relative place of the rentier class within society: The Pasinetti or fair rate rule thus sees the rentier class as a ‘necessary evil’; the Kansas City and Smithin Rules advocate the euthanasia of the rentier class.

– Smithin and KC rule: distribute real income away from rentiers, in the tradition of Keynes’s ‘Euthanasia of the Rentier’ (both rules claim his mantle);

– Pasinetti rule: monetary policy is neutral in terms of the distribution of income: “All individuals, when they engage in debt/credit relations, should obtain, at any time, an amount of purchasing power that is constant in terms of labour” (Pasinetti, 1981, p. 174). It preserves the intertemporal distribution of income between borrowers and lenders

- Seeks to address the Smithin question: in the absence of a Wicksellian natural rate, exactly what, according to post-Keynesian theory, should the long run, equilibrium rate of interest be?

- We will see that each rule has different macroeconomic outcomes.

So:

- Monetary policy is an ineffectual tool for fighting inflation, or even other real variables, such as unemployment. The monetary transmission mechanism between interest rates and economic variables is unreliable, too complex.

- Monetary policy is to be avoided as an instrument of stabilization policy.

• Basic principles of this approach:

– Interest rates are an exogenous or administrative variable;

– The economy is demand-driven, both in the short run as in the long run;

– No simple relationship between interest rates and inflation;

– Inflation is conflict-driven;

– Interest rates still matter: high interest rates can have lasting effects on unemployment and output through income distribution;

– Hence, monetary policy is not “the only game in town”: puts fiscal policy back in the picture (absent from New Consensus Macro);

• Given this discussion, some post-Keynesians (the parking-it approach) favours keeping interest rates ‘parked’ at a given level. In this sense, which level if more appropriate?

THE MODEL

• Model has 4 components:

- Inflation and the distribution of income;
- Economic growth;
- Technical progress;
- Monetary policy.

<u>INFLATION AND THE DISTRIBUTION OF INCOME</u>

$$w = \mu[(\omega_W - \omega) + q + p^e] \quad , \quad 0 < \mu < 1 \qquad [1]$$

$$p = \varphi(\omega - \omega_F) + w - q \quad , \quad 0 < \varphi < 1 \qquad [2]$$

$$\omega_W = f(g) \quad , \quad f' > 0$$

[3]

w: the rate of growth of nominal wages,

ω_W: the target wage share of workers (the distributional aspirations of workers)

ω, the actual wage share,

q the rate of growth of labour productivity,

μ denotes the relative power of workers in the wage bargain,

p^e and p denote the expected and actual rates of inflation, respectively,

ω_F is the target wage share of firms,

g is the rate of growth

φ is a reflection of the "monopoly power" of firms *vis-a-vis* the goods market (specifically, their ability to increase prices in excess of increases in unit labour costs).

$(w - q)$ is unit labor costs

$$p^* = \Omega(f(g^*) - \omega_F) - q^* \qquad \textbf{[5]}$$

ECONOMIC GROWTH

$$g = \gamma + \gamma_u u + \gamma_r (r - i\lambda) \qquad [6]$$

$$g^s = s_\pi r \qquad [7]$$

$$r = \frac{(1-\omega)u}{v} \qquad [8]$$

u is the rate of capacity utilization,

r is the gross rate of profit,

i is the nominal interest rate,

λ is the ratio of corporate debt to the aggregate capital stock (assumed constant in the short run),

g^s is the rate of growth of savings,

v is the (fixed) capital-output ratio,

g is as previously defined.

Solving and re-arranging, we get:

$$u^* = \frac{(\gamma - \gamma_r i^* \lambda)v}{(s_\pi - \gamma_r)(1-\omega_F) - \gamma_u v} \qquad [9]$$

Note that an economically meaningful solution to [9] (where $u^* > 0$), now requires *both* $s_\pi > \frac{\gamma_u v}{1-\omega_F} + \gamma_r$ (the familiar neo-Kaleckian condition) *and* $\gamma > \gamma_r i\lambda$ (specific to this model)

Substituting [9] into [6] and solving for the equilibrium rate of growth, we arrive at:

$$g^* = \frac{s_\pi (1-\omega_F)(\gamma - \gamma_r i^* \lambda)}{(s_\pi - \gamma_r)(1-\omega_F) - \gamma_u v} \qquad \textbf{[10]}$$

It should be noted that it follows from [9] and [10] that:

$$\frac{\partial u^*}{\partial(1-\omega_F)} = \frac{-v(\gamma - \gamma_r i\lambda)(s_\pi - \gamma_r)}{[(s_\pi - \gamma_r)(1-\omega_F) - \gamma_u v]^2} < 0$$

and:

$$\frac{\partial g^*}{\partial(1-\omega_F)} = \frac{-s_\pi \gamma_u v(\gamma - \gamma_r i\lambda)}{[(s_\pi - \gamma_r)(1-\omega_F) - \gamma_u v]^2} < 0$$

In other words, the growth regime is stagnationist and wage-led.

TECHNICAL PROGRESS

$$q = q(g) \quad , \quad q' > 0$$

where $q' > 0$ captures a Verdoorn effect: increased economic growth results in dynamic increasing returns and hence faster productivity growth.

Linearizing this technical progress function and evaluating the resulting expression at the equilibrium rate of growth, we arrive at:

$$q^* = \alpha_g g^* \quad , \quad \alpha_g > 0 \qquad [11]$$

Note that:

$$\frac{\partial q^*}{\partial(1-\omega_F)} = \alpha_g \frac{\partial g^*}{\partial(1-\omega_F)} < 0$$

since $\frac{\partial g^*}{\partial(1-\omega_F)} < 0$ as previously demonstrated. In other words, the dynamics of productivity growth are also wage-led.

MONETARY POLICY

$$i = \beta_p p + \beta_q q \qquad [12]$$

where:

Fair Rate (Pasinetti) rule: $\beta_p = \beta_q = 1$

Smithin rule: $\beta_p = 1, \quad \beta_q = 0$

Kansas City rule: $\beta_p = \beta_q = 0$

It follows that the equilibrium nominal interest rate can be written as:

$$i^* = \beta_p p^* + \beta_q q^* \qquad [13]$$

THE COMPLETE MODEL

I assume that both wage shares are exogenous (relaxing eq. 3) for simplicity (from [5] and [11], we get $\frac{\partial p^*}{\partial g^*} = \Omega f' - \alpha_g$. By setting f' to zero implies that faster growth reduces labour unit costs and hence inflation).

$$p^* = \Omega(\omega_W - \omega_F) - q^* \qquad [5']$$

$$g^* = \frac{s_\pi(1-\omega_F)(\gamma - \gamma_r i^* \lambda)}{(s_\pi - \gamma_r)(1-\omega_F) - \gamma_u v} \qquad [10]$$

$$q^* = \alpha_g g^* \qquad [11]$$

$$i^* = \beta_p p^* + \beta_q q^* \qquad [13]$$

Application of the interest rate rules:

We can now find the general equilibrium rates of growth, inflation and interest that emerge from the interaction of the equations listed above, under various different assumptions about the size of the parameters β_p and β_q.

WE CAN FURTHER REDUCE THE MODEL TO TWO EQUATIONS:

Substituting [13] into [10]:

$$g^* = \frac{s_\pi(1-\omega_F)(\gamma - \gamma_r\lambda[\beta_p p^* + \beta_q q^*])}{(s_\pi - \gamma_r)(1-\omega_F) - \gamma_u v}$$

[14]

And [14] into [11] and solving for q^* yields:

$$q^* = \frac{\alpha_g s_\pi(1-\omega_F)(\gamma - \gamma_r\lambda\beta_p p^*)}{(1-\omega_F)(s_\pi[1+\alpha_g\gamma_r\lambda\beta_q] - \gamma_r) - \gamma_u v} \qquad \textbf{[15]}$$

We now have two equations ([5'] and [15]) in two unknowns (p^* and q^*).

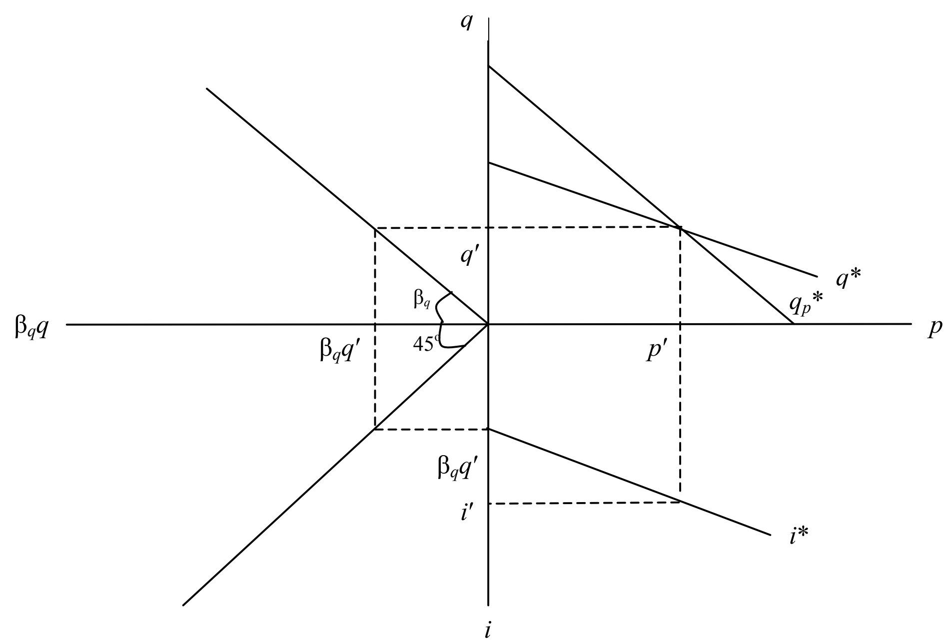
$$p^* = \Omega(\omega_W - \omega_F) - q^* \qquad \text{[5' – inflation frontier]}$$

$$q^* = \frac{\alpha_g s_\pi(1-\omega_F)(\gamma - \gamma_r\lambda\beta_p p^*)}{(1-\omega_F)(s_\pi[1+\alpha_g\gamma_r\lambda\beta_q] - \gamma_r) - \gamma_u v} \qquad \text{[15 – growth frontier)}$$

Subject to stability conditions. Also q^* is decreasing in p^*: with inflation, the rate of interest rises (eq. 13), lowering growth (eq. 10), reducing q^* (eq. 11).

In this way, Figure 1 illustrates the derivation of the general equilibrium rates of growth, inflation and interest from the structural model summarized at the start of this section.

Figure 1: General Equilibrium



Pasinetti rule $\beta_p = 1$; $\beta_q = 1$):

$$q_H^* = \frac{\alpha_g s_\pi (1-\omega_F)(\gamma - \gamma_r \lambda p^*)}{(1-\omega_F)(s_\pi [1+\alpha_g \gamma_r \lambda] - \gamma_r) - \gamma_u v} \qquad [15']$$

from which it follows that:

$$\frac{dq_H^*}{dp^*} = \frac{-\alpha_g s_\pi (1-\omega_F)\gamma_r \lambda}{(1-\omega_F)(s_\pi [1+\alpha_g \gamma_r \lambda] - \gamma_r) - \gamma_u v} < 0$$

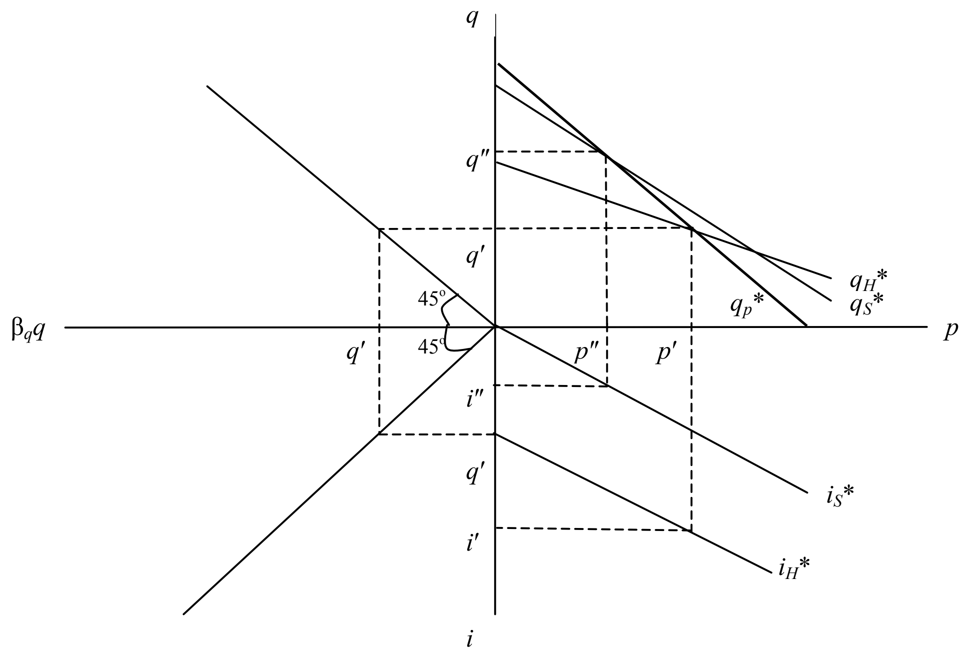
Smithin rule ($\beta_p = 1$; $\beta_q = 0$):

$$q_S^* = \frac{\alpha_g s_\pi (1-\omega_F)(\gamma - \gamma_r \lambda p^*)}{(1-\omega_F)(s_\pi - \gamma_r) - \gamma_u v} \qquad [15'']$$

from which it follows that:

$$\frac{dq_S^*}{dp^*} = \frac{-\alpha_g s_\pi (1-\omega_F)\gamma_r \lambda}{(1-\omega_F)(s_\pi - \gamma_r) - \gamma_u v} < 0$$

The Smithin growth frontier is both steeper and has a larger intercept term.

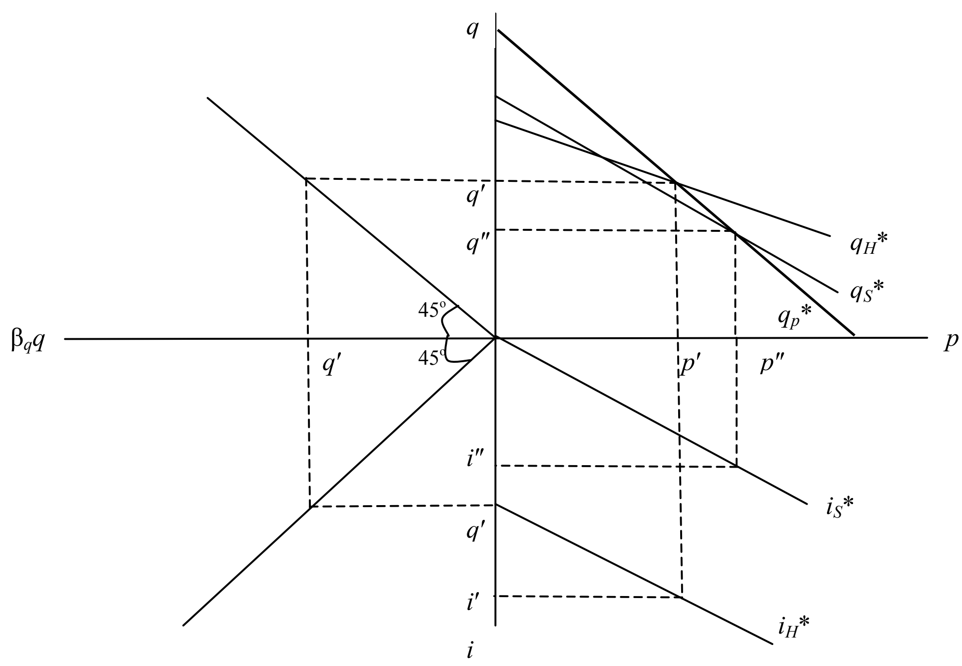


- Nominal interest rates always higher under the Pasinetti rule.
- Growth will be higher and inflation lower with the Smithin rule (lower interest rates (eq. 13), higher growth (eq. 10), and therefore lower inflation (eq. 11) than under the Pasinetti Rule).
- However, as inflation rises, interest rates rise as well: larger drop in growth under the Smithin rule: no smoothing effect

- Under Pasinetti Rule, higher inflation leads to higher rates of interest (eq. 13), lower growth (eq. 10), lower productivity (eq. 11), which now feeds back into the interest rate rule to lower it and increase growth: absent in the Smithin Rule: essence of the steeper curve

  So in periods of recession with higher inflation and lower growth, the Pasinetti Rule becomes the high growth and low inflation regime

Figure 3: The Pasinetti and Smithin Rules in a Recession



First conclusion

The Pasinetti rule is the “high growth, low inflation” monetary policy rule during a recession, whereas the Smithin rule plays the same role in a positive growth environment.

THE KANSAS CITY RULE

$\beta_p = \beta_q = 0$

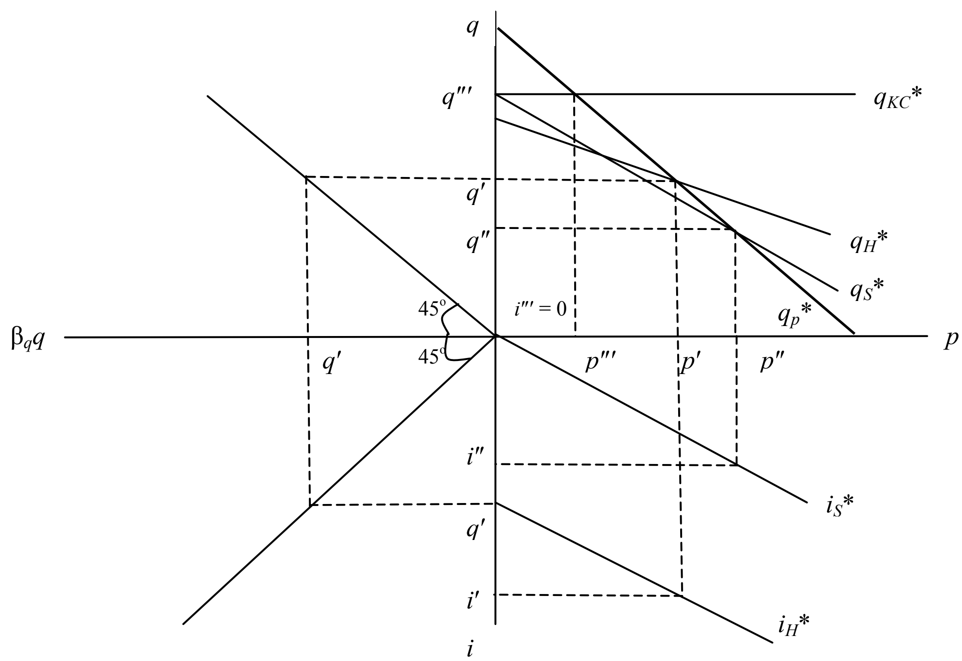
$$q^*_{KC} = \frac{\alpha_g s_\pi (1-\omega_F)\gamma}{(1-\omega_F)(s_\pi - \gamma_r) - \gamma_u v} \qquad [15''']$$

with:

$$\frac{dq^*_{KC}}{dp^*} = 0$$

The growth frontier is horizontal – equilibrium productivity growth is constant at the rate that would emerge from [15"] with $p = 0$, regardless of the rate of inflation.

Figure 4: The Pasinetti, Smithin and Kansas City Rules Compared



As a result of this, the Kansas City rule always yields the highest rate of growth and the lowest rate of inflation. The intuition behind this result is straightforward. By minimizing the value of the nominal interest rate, the Kansas City rule results in higher growth and hence lower inflation than either the Pasinetti or Smithin rules, both of which give rise to higher interest rate regimes.

This is because whilst the interest rate increases and the growth rate decreases with inflation under the Smithin and Pasinetti rules, the rates of interest and growth are invariant with respect to inflation under the Kansas City rule.

FUTURE RESEARCH

Some of the results derived may be sensitive to the assumed exogeneity of wage targets in the inflation process. Further exploration of this sensitivity is clearly warranted. Nevertheless, together with consideration of their distributional impacts, the exercise in this paper represents a first step towards comparative evaluation of three prominent Post Keynesian interest rate rules. It is hoped that this will contribute to the process of choosing amongst these rules and, in so doing, providing an answer to the "Smithin question": what is the appropriate benchmark rate of interest in a Post Keynesian economy in which there is no natural rate of interest?