797n Macro 3 – Final exam – 11 December 2014

Answer one question from each of the two parts of this exam.

Part 1 (65%)

Question 1

The Goodwin model implies that (i) the employment rate determines the rate of growth of the wage share, (ii) the wage share determines the growth rate of the employment rate and (iii) both the wage share and the employment rate will exhibit conservative fluctuations (i.e. neither damped nor explosive) where the amplitude of the fluctuations depends on the initial conditions.

Retaining all other assumptions of the Goodwin model, assume that investment (=saving, S) is given by

$$I = S = f(v)(1-u)q; \quad 1 \geq f(v) > 0,\ f\,'(v) \gtreqless 0 \tag{*}$$

where, using Goodwin's notation, v and u are the employment rate and wage share, and where q is total output.

1. Briefly describe and discuss the relation between equation (*) and Goodwin's specification.
2. Derive the reduced-form equations for the growth rates of u and v.
3. Show that there is (at most) one stationary equilibrium with $0 < u < 1$ and $0 < v < 1$.
4. Show that this equilibrium is locally asymptotically stable if $f\,' < 0$ but unstable if $f\,' > 0$.
5. Briefly discuss the intuition behind the results and the possible economic interpretations of the specification in (*).

Question 2

Consider the following 'stagnationist' model

$$\begin{aligned} \frac{I}{K} &= a + bu \\ \frac{S}{K} &= s\pi u \end{aligned}$$

where π is the profit share and $u = \frac{Y}{K}$ is a measure of capital utilization. There is no depreciation, output adjusts to clear the product market, and the Keynesian stability condition is satisfied ($b < s\pi$). The profit share π is determined by firms' pricing behavior.

1. Derive the steady growth solution for utilization and the rate of growth, assuming that the markup and hence the profit share is fixed.

2. Now assume that instead of having a fixed markup, the rate of employment affects the pricing decision. Specifically, let

$$\dot{\pi} = f(e); \qquad f\,' > 0 \tag{1}$$

The employment rate, e, is given by

$$e = \frac{L}{N} = \lambda u k$$

where L is employment, N the total labor force, $\lambda = \frac{L}{Y}$ the productivity of labor, and $k = \frac{K}{N}$ the ratio of the capital stock to the labor force. It is assumed that the labor force grows at the constant rate n and that $n > a$.

   (a) Show that the growth rate of e can be written

$$\hat{e} = -\frac{s}{s\pi - b}\dot{\pi} + \frac{s\pi a}{s\pi - b} - n \tag{2}$$

   (b) Use equations (1)-(2) to show that there is a unique stationary solution for (π, e).

   (c) Derive the Jacobian and - evaluating it at the stationary solution - show that the stationary solution is locally asymptotically stable.

   (d) Briefly discuss the intuition behind the results. In particular:

      i. how can adjustments in the markup ensure the existence of a steady growth path with a constant rate of employment?

      ii. why do we need $f\,' > 0$ to get stability?

Part 2 (35%)

Question 3

Describe the key assumptions and properties of the post-Kaleckian growth models pioneered by Dutt, Rowthorn and Marglin-Bhaduri. Discuss the relation between these models and Harrodian views on the determination of investment.

Question 4

Describe Minsky's 'financial instability hypothesis', commenting in particular on the plausibility of the apparent inability of agents to learn from past crises and their belief that 'this time it's different'.