PART 4

MARKET DISTORTIONS AND TRADE

12. A Theory of Interest and the Steady-State Rate of Return on Capital

International Economic Journal
Autumn 1987

INTERNATIONAL ECONOMIC JOURNAL
Volume 1, Number 3, Autumn 1987

A THEORY OF INTEREST AND THE STEADY-STATE RATE OF RETURN ON CAPITAL

Fazi and Salvadori have shown that, by dropping the unnecessary assumption that the interest rate received by the workers on their loans to the capitalists is equal to the rate of profit which the capitalists get from their investment, the Kaldor model becomes perfectly consistent without assuming that wage income is not saved. In order to obtain the steady-state rate of return on capital, however, they need a specific theory on interest rates. Using Hong's theory on interest rates in the form of "institutionalized monopsonistic capital market," this paper demonstrates how we can obtain the steady-state rate of return on capital for a given parameter value of the interest-rate elasticity of workers' demand for monetary assets. [020].

1. INTRODUCTION

Postulating a "classical savings function" where different proportions of profits and wage income are saved, and also postulating that both workers and capitalists coexist, the Kaldor model (1955) is satisfied only by assuming that wage income is not saved. Fazi and Salvadori (1981) have, however, shown that by dropping the unnecessary assumption that the interest rate (i) received by the workers on their loans to the capitalists is equal to the profit rate (r) that the capitalists get from their investments, the Kaldor model becomes perfectly consistent without assuming that wage income is not saved.

Pasinetti (1974) also considers the case of $r > i$, but in handling the case he violates the national income accounting principle by ignoring the existence of $(r - i)K_w$ where K_w represents the workers' capital loaned to capitalists. Fazi and Salvadori explicitly take into account of the existence of $(r - i) K_w$, but then they need a specific theory on interest rates in order to obtain the steady-state rate of return on capital. Hong (1986), however, provides a specific theory on interest rates in the form of "institutionalized monopsonistic capital market" that enables us to obtain the steady-state r value for any given

*The author would like to thank professor Ji-Soon Lee for his helpful suggestions.

parameter value of ϕ which represents a given interest-rate elasticity of workers' demand for monetary assets. The objective of this paper is to demonstrate how we can obtain the steady-state r value for any given parameter value of ϕ.

2. HONG'S MODEL OF MONOPSONISTIC CAPITAL MARKET

In Hong's model, entrepreneurs (i.e., capitalists) save exclusively in the form of physical capital, but workers save only in the form of monetary assets (K_w) through the banking system which are lent to entrepreneurs. The model postulates that the entire commercial banking system is owned by the entrepreneurs and the government has instituted a monopsonistic capital market for the entrepreneurs, allowing them as a group to maximize the monopsonistic profits in setting the real interest rate. Hence at the monopsonist profit-maximization point, we obtain:

$$i = \frac{r}{1+1/\phi} \leq r \tag{1}$$

In steady-state growth, workers' capital (K_w) and capitalists' capital (K_c) grow at the same natural rate (n); thus the following constraints must be satisfied:

$$s_w(W + iK_w) = nK_w \tag{2}$$

$$s_c[rK_c + (r-i)K_w] = nK_c \tag{3}$$

where s_w and s_c represent the savings propensities of workers and capitalists, respectively, and W the workers' total wage income. It is assumed that s_w is uniquely determined by i and is an increasing function of i such that

$$s_w = s_w(i);\; ds_w / di > 0 \tag{4}$$

3. RATE OF RETURN ON CAPITAL AND INTEREST RATE

We obtain from equations (2) and (3) the following steady-state relationship:

$$r(s_c - s_w) - i \cdot s_w(s_c / s - 1) + s_w / \delta = n \tag{5}$$

where $s = \delta n$ and δ represents the capital-output ratio, K/Y. Here $K = K_c + K_w$ and $Y = W + rK$. We know that $ds_w/di > 0$ and $\partial i/\partial r > 0$ for a given ϕ value. In Hong's model ϕ is regarded as a parameter and we can see that, for a given value of ϕ, the equation (5) can be solved to obtain the steady-state rate of return on capital, r^*.

Now in order to see the relationship between ϕ and r^* as well as ϕ and i^*, we let

$$G(i,r) = i - [1/(1+1/\phi)]r \tag{6}$$

and also let

$$H(i,r) = r(s_c - s_w) - i \cdot s_w(s_c/s - 1) + s_w/\delta - n. \tag{7}$$

Since we get $i = 0$ when $\phi = 0$ and $i = r$ when $\phi = \infty$, we may first consider the two special cases, $H(0,r_0^*)$ and $H(r_\infty^*,r_\infty^*)$, where r_0^* represents the stady-state rate of return on capital when $\phi = 0$ and r_∞^* represents the rate when $\phi = \infty$. Now we obtain from equation (5)

$$r_0^* = (n - s_w^*/\delta)/(s_c - s_w^*) > 0 \tag{8}$$

$$r_\infty^* = n/s_c > 0. \tag{9}$$

Since $s_c > s > s_w$, we know that

$$r_0^*/r_\infty^* = (1 - s_w^*/s)/(1 - s_w^*/s_c) < 1. \tag{10}$$

We may further consider

$$\left.\frac{\partial i}{\partial r}\right|_{H=0} = -\frac{\partial H/\partial r}{\partial H/\partial i}$$

$$= \frac{s_c - s_w}{(ds_w/di)[r + i(s_c/s - 1) - 1/\delta] + s_w(s_c/s - 1)} \tag{11}$$

which is positive if $r + i(s_c/s - 1) - 1/\delta > 0$ or if ds_w/di is very small. If either one of these sufficient conditions holds, we get the situation depicted in Figure 1 which, taking into account of equation (6), shows that

$$\partial r^*/\partial \phi > 0 \tag{12}$$

and

$$\partial i^* / \partial \phi > 0 \tag{13}$$

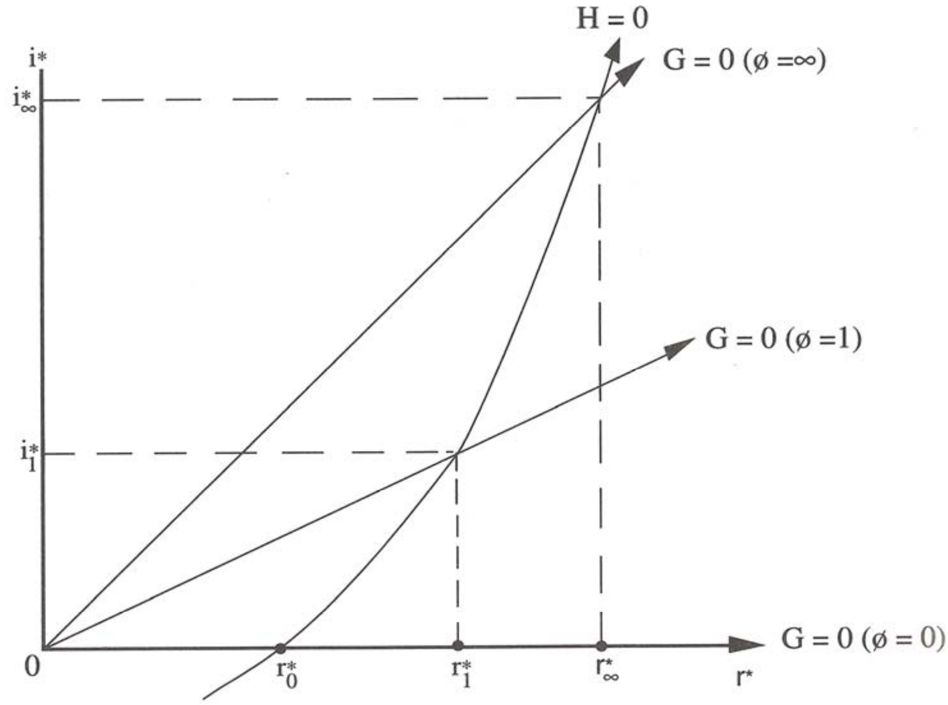

Figure 1. Steady State Values of *r* and *i*

for the entire range of $\phi = 0$ through $\phi = \infty$ (i.e., the range of $i = 0$ through $i = n/s_c$); and hence obtain

$$i^* = i(r^*, \phi) = i^*(\phi);\ di^* / d\phi > 0 \tag{14}$$

$$s_w^* = s_w[i(r^*, \phi)] = s_w^*(\phi);\ ds_w^* / d\phi > 0 \tag{15}$$

In Hong's model, ϕ is regarded as a parameter and therefore, for a given value of ø, one can get the steady-state rate of return on capital r^*, and simultaneously the monopsonist profit-maximizing interest rate i^*. Furthermore, the higher the interest-rate elasticity of workers' demand for monetary assets (ϕ), the higher will be the steady-state rate of return on capital, the monopsonist profit maximizing interest rate and the workers' propensity to save.

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