

PART 4

MARKET DISTORTIONS

AND TRADE

11. Institutionalized Monopsonistic Capital Market  
in Developing Economy

*Journal of Development Economics*  
December 1986

## INSTITUTIONALIZED MONOPSONISTIC CAPITAL MARKETS IN A DEVELOPING ECONOMY\*

This paper presents a plausible story on capital market imperfections and fits it in a Pasinetti-style growth model. The first object is to show that, in a developing economy, credit rationing may well be explained by the institutionalized monopsonistic capital market. The second object is to amplify the intimate relationship between real and monetary phenomena by presenting a simple conceptual framework to link the financial sector and the real sector via workers' demand for monetary assets and entrepreneurs' capital formation. The foremost emphasis is given to the fact that entrepreneurs and workers do not have the same ability and opportunity to invest their saved income.

### 1. Introduction

Under the financial structure found in most developing countries, official bank credit is extended at below market rates, which makes credit rationing unavoidable. Indeed, in a country like Korea, credit rationing has served as one of the most important policy tools to carry out the export promotion strategy. The first object of this paper is to show that, in a developing economy, credit rationing may well be 'explained' by the institutionalized monopsonistic capital market.<sup>1</sup> That is, in a developing economy, the government can institute a monopsonistic capital market for the entrepreneurs and let the entrepreneurs as a group maximize the monopsonistic profits in

\*The author would like to thank Ronald Findlay for his helpful suggestion on an earlier version of this paper. The author would also like to thank the referees for their comments.

<sup>1</sup>Stiglitz and Weiss (1981) show that in equilibrium a loan market may be characterized by credit rationing because of imperfect information. On the other hand, according to Jaffe and Modigliani (1969), 'equilibrium credit rationing' exists because of the 'institutional structure' whereby common rates are charged to different sets of customers. This paper considers the basic structure of the financial system as the key to the explanation of credit rationing in a developing economy.

setting the real interest rates. In return, the government can enjoy the power of credit rationing among the entrepreneurs and of determining the sectoral flow of investment funds. The second object of this paper is to amplify the intimate relationship between real and monetary phenomena by presenting a simple conceptual framework to link the financial sector and the real sector via workers' demand for monetary assets and entrepreneurs' capital formation. The foremost emphasis is given to the fact that entrepreneurs and workers do not have the same ability and opportunity to invest their saved income.

Section 2 presents the determination of monopsonist profit maximizing interest rate, section 3 examines the steady-state implications of monopsonistic capital market by postulating class savings behavior, and section 4 gives concluding remarks. In this paper the rate of return on investment is given exogenously but the monopsonist profit maximizing rate of interest, which represents the cost of bank credits, is determined by the sensitivity of nonentrepreneurs (i.e., workers) to the rates of return on their savings in the banking system.

## 2. Monopsonistic capital market

We may postulate that the government has instituted a monopsonistic capital market in which workers supply a larger amount of capital to entrepreneurs (i.e., save more) only at a higher rate of interest in a perfectly competitive deposit market while the entrepreneurs as a sole user-group of capital behave as a monopsonist. In such a case, the real rate of interest the entrepreneurs pay to the workers' deposits can be much smaller than the rate of return on capital ( $r$ ) at the point where the marginal cost of workers' capital is equal to  $r$ .

We now postulate that entrepreneurs save exclusively in the form of physical capital but workers save only in the form of monetary assets which are lent to entrepreneurs. Suppose further that the entire commercial banking system is owned by the entrepreneurs. Then the entrepreneurs as a group will try to maximize their income in setting the interest rates on bank deposits. If we assume that there are negligible real resources involved in producing deposits, income ( $B$ ) accruing to the entrepreneur group from its operation of the commercial banking system can be represented by

$$B = [(1-z)r - i]D(i)$$

where  $z$  is the reserve ratio,  $r$  the real rate of return on capital,  $i$  the real

interest rate on bank deposits, and  $D$  the demand for real deposits.

Now the first-order condition of income maximization for the entrepreneur group who operates the commercial banking system is

$$dB/di = (1-z)r - 1 + \frac{1}{1+i} i \frac{dD}{di} = 0,$$

where  $\frac{dD}{di} = (dD/di)(i/D)$ . At the monopsonist profit maximization point,<sup>2</sup>

$$i = (1-z) / 1 + \frac{1}{r} \quad r < r.$$

Throughout the history of capitalist economy, the bank interest rates seem to have been considerably lower than the average rate of return on investment. Balestra and Baranzini (1971) suggest that ‘a ratio of 1 to 2 is more likely to reflect the realities of the world than a ratio of 1 to 1.’ In addition to imperfect information and market disequilibrium, the usual ‘explanations’ for the observed difference between  $i$  and  $r$  are the existence of a third factor, entrepreneurship, the risk and uncertainty associated with investment activities, or the minimum size of funds required to undertake investments which precludes small savers from direct investment activities. The contribution of this paper is to emphasize the possible institutionalization of a monopsonistic banking system by the government.

The following section examines the steady-state implications of a monopsonistic capital market postulating the class savings behavior. The purpose of section 3 is to help place the conceptual framework presented in this section in the long-run perspective.

**3. Steady-state implication**

In order to examine a possible steady-state growth implication of the monopsonistic capital market, this section postulates a ‘class savings behavior,’ i.e., a two-class economy with a capitalist class which does not work and saves  $s_c$  of its profit income, and a workers class which derives its income from wages and interest on the capital previously saved and saves  $s_w$

<sup>2</sup>Bank credit is rationed and the bank lending rate, which equals  $i$ , is unresponsive to the existence of excess demand for credit itself. As  $\theta$  goes to infinity the performance of the monopsonistic capital market approaches that of a perfectly competitive capital market.

of its income ‘regardless of the source.’<sup>3</sup> Models with class savings behavior were investigated by Stiglitz (1969), Pasinetti (1974) and others. According to Pasinetti (1974, p. 140), ‘. . . the natural rate of growth and the capitalists propensity to save determine the rate of profit on capitalists’ capital first of all, independently of anything else, and therefore also independently of the rate of interest.’ However, these models do not determine either the rate of interest or the capital shares or the personal distribution of income, although there exists a relationship between the capital shares and the rate of interest. These models can be fully determined only by adding a relationship setting out a theory of interest or a theory of capital shares. Under the monopsonistic capital market, it was shown in section 2 that, for the given rate of return on capital ( $r$ ) and for the given interest-rate elasticity of workers’ demand for monetary assets ( $\theta$ ), the monopsony profit maximizing rate of interest ( $i$ ) is uniquely determined. This postulation enables our model of ‘class savings behavior’ to determine the capital shares and hence the personal distribution of income. ‘Entrepreneurs’ in section 2 represent capitalists in this model.

Total capital stock ( $K$ ) equals the sum of workers’ capital ( $K_w$ ) and capitalists’ capital ( $K_c$ ). Workers’ earnings comprise wages ( $W$ ) and interest income on loans to capitalists ( $iK_w$ ). We let  $n$  represent the natural rate of growth,  $r$  the steady-state rate of return on capital and  $\sigma$  the capital-output ratio. Capitalists (i.e., entrepreneurs) earn profits on their own capital ( $rK_c$ ) and the difference between the rate of return on capital and the rate of interest they pay to workers on worker’s capital loaned to them, i.e.,  $(r - i)K_w$ . In steady-state growth, workers’ and capitalists’ capital grow at the same natural rate ( $n$ ); thus (assuming  $z = 0$  for the sake of simplicity) the following constraints must be satisfied:

$$s_w(W + iK_w) = nK_w, \quad (1)$$

$$s_c[rK_c + (r - i)K_w] = nK_c. \quad (2)$$

<sup>3</sup>Postulating a ‘classical savings function’ where different proportions of profits and wage income are saved, and also postulating that both workers and capitalists co-exist, the Kaldor model is satisfied only by assuming that wage income is not saved. However, Fazi and Salvadori (1981) have shown that, by dropping the unnecessary assumption that the rate of interest received by the workers on their loans to the capitalists is equal to the rate of profit which the capitalists get from their investments, the Kaldor model becomes perfectly consistent without assuming that wage income is not saved.

If we define the share of workers' capital in total capital stock as  $u = K_w/K$  and let  $s = n$ , then

$$u = s_w (s_c - s) / (s_c - s_w). \tag{3}$$

In the framework of section 2,  $K_w = D$ , i.e., the stock of workers' monetary assets represents the workers' capital. Here,  $n = dK_w/K_w$  and  $s_w Y_w = nK_w$  where  $Y_w$  represents workers' income. Now we assume that  $s_w$  is uniquely determined by  $i$  and is an increasing function of  $i$  such that

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

However, we do not even pretend to know what determines the savings propensity of entrepreneurs. In this paper,  $s_c$  is simply regarded as a given constant which is larger than the maximum possible value of  $s_w$ , i.e.,  $s_w(i) < s_c$ . As a result, we get  $s_w < s < s_c$  where  $s (= n = dK/Y)$  represents the constant aggregate (weighted average) propensity to save for the economy and  $Y$  the total national income. In section 2, it was shown that

$$i = i(r) = (1 - z) / (1 + \frac{1}{r}) \quad r < r. \tag{5}$$

Therefore, under reasonable assumptions, we can get

$$i^* = i^*(r), \quad di^* / dr > 0, \tag{6}$$

$$s_w^* = s_w^*(i), \quad ds_w^* / di > 0, \tag{7}$$

$$u^* = u^*(i), \quad du^* / di > 0. \tag{8}$$

If we define the share of capitalists' income ( $Y_c$ ) in total national income as  $y_c (= Y_c/Y)$ , we get

$$y_c = (r^* K - i^* K_w) / Y = (s - s_w) / (s_c - s_w), \tag{9}$$

$$dy_c / dr = -[(s_c - s) / (s_c - s_w)^2] (ds_w / di) < 0. \tag{10}$$

That is, the higher the interest rate elasticity of workers' demand for monetary assets ( $\emptyset$ ), the higher will be the monopsonist profit maximizing

interest rate, the higher will be the workers' propensity to save, the larger will be the share of workers' capital in total national capital stock, and the smaller will be the share of capitalists' income in total national income.

Pasinetti (1974), Fazi and Salvadori (1981) and others have developed models of growth and distribution simply 'assuming' that the rate of interest is lower than the profit rate. This paper postulates a monopsonistic capital market in the sense that workers supply a larger amount of capital to entrepreneurs (i.e., save more) only at a higher rate of interest in a perfectly competitive deposit market while, on the demand side, the government has institutionalized the entrepreneurs as a sole user-group of capital to behave as a monopsonist taking account of the supply behavior of workers' capital.<sup>4</sup> The model with class savings behavior is supposed to amplify some essential aspects of a capitalist economy. The monopsonistic capital market may also be an essential aspect in many capitalist developing economies.<sup>5</sup>

#### 4. Concluding remarks

This paper suggests a specific relationship of monetary aggregate  $D (= K_w)$  to real side economic activities such as capital-formation activities and workers' saving activities. There exists a unique relationship between the quantity of credit rationing and the level of interest rate. Bliss (1975, pp. 126-130) was especially concerned with the constancy of  $s_c$  and  $s_w$  in the Cambridge models, which are exogenously given and hence are independent of any other variables. This paper makes at least  $s_w$  determined by the rate of interest, which in turn is determined by the magnitude of  $\emptyset$ . Hence one may still be able to match the conclusions of this paper with the actual observations. First, the key parameter in our model is the interest rate

<sup>4</sup>The exogenous variables of the neo-Keynesian models consist of the presence of a pure capitalist class, the intergenerational stability of the capitalists and workers classes,  $n$ ,  $s_c$  and  $s_w$ . We now have made  $s_w$  endogenous by postulating a monopsonistic capital market.

<sup>5</sup>Though our model is essentially addressed to a developing economy characterized by the repressed financial regime à la Shaw (1973) and McKinnon (1973), it might also be applicable to a country like Japan. Rimbara and Santomero (1976) show that the fundamental structure of the financial system of Japan satisfies the basic requirements for equilibrium non-price credit rationing. According to Ito and Ueda (1981), 'among economists who study the Japanese financial markets, there is a consensus that the markets are heavily regulated. . . the low "interest rate" policy, designed to maintain high growth rates in strategic sectors, has kept interest rates inflexible at relatively low levels.'

elasticity of workers' demand for monetary assets. The larger the magnitude of the elasticity, the smaller will be the difference between the (steady-state) rate of return on investment and the (steady-state) monopsonist profit maximizing interest rate, and the higher will be the workers' propensity to save. Second, the welfare implication of this paper is rather straightforward. Elimination of monopsonistic market structure is obviously welfare improving and, if one does not believe in infallible government, is also efficiency improving. Third, this paper leads us to pay more attention to the differences in institutional environment among countries and their economic implications.

The political economy underlying the main theme of this paper may be understood in the following fashion. The governments of developing countries and perhaps for that matter any government on the earth would, if allowed, like to enjoy such power like credit rationing, even if the associated repressed financial regime would result in a lower aggregate propensity to save. The government always has ready-made excuses to justify credit rationing such as the promotion of infant industries. On the other hand, the entrepreneurs tend to surrender, if not willingly, without active resistances their decision-making power in the financial market (which otherwise might have been made fairly competitive), accepting the government as the ultimate unit of control in the institutionalized monopsonistic financial market. It is because the chosen few, who may well turn out to be the existing group of influential big entrepreneurs, would be able to enjoy using very low-cost capital. The unprivileged small entrepreneurs will have extra hardships in their investment activities and the workers will have to accept disincentives for their wealth accumulation activities, but these are the members of the underdeveloped societies who have to follow as best they can.

#### REFERENCES

- Balestra, Pietro and Mauro Baranzini, 1971, Some optimal aspects in a two class growth model, *Kyklos* 24, 240-256.
- Bliss, C. J., 1975, *Capital theory and the distribution of income* (North-Holland, Amsterdam).
- Fazi, Elido and Neri Salvadori, 1981, The existence of a two-class economy in the Kaldor model of growth and distribution, *Kyklos* 34, no. 4, 582-592.
- Ito, Takatoshi and Kazuo Ueda, 1981, Tests of the equilibrium hypothesis in disequilibrium econometrics: An international comparison of credit rationing, *International Economic Review* 22, no. 3, 691-708.
- Jaffe, D.W. and F. Modigliani, 1969, A theory and test of credit rationing,



- American Economic Review 59, no. 5, 850-872.
- McKinnon, Ronald I., 1973, Money and capital in economic development (The Brookings Institution, Washington, DC).
- Pasinetti, Luigi L., 1974, Growth and income distribution (Cambridge University Press, London).
- Rimbara, Yukio and Anthony M. Santomero, 1976, A study of credit rationing in Japan, International Economic Review 17, no. 3, 567-580.
- Shaw, Edward S., 1973, Financial deepening in economic development (Oxford University Press, New York).
- Stiglitz, Joseph E., 1969, Distribution of income and wealth among individuals, Econometrica 37, no. 3, 328-397.
- Stiglitz, Joseph E. and Andrew Weiss, 1981, Credit rationing in markets with imperfect information, American Economic Review 71, no. 3, 393-410.

*Received December 1984, final version received August 1985*