Interest, Profit and Rent

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I. Introduction

According to Solow [14, pp. 96-97], the social rates of return on capital in the U.S. were estimated to have been in the 15 to 20 percent. per year range and even higher if housing was excluded. On the other hand, many people in the U.S. save at 4 or 5 percent. interest rate ceiling imposed by the government, presumably implying that large classes of people have a marginal rate of time preference no greater than 4 or 5 percent. a year.(1)

We may define the rate of gross profits as the rate of return on investment (or capital). In an aggregate neoclassical model, the rate of return equals the marginal productivity of capital. However, the concept of the rate of return on investment defined by Solow [14, p. 34], i.e., the payoff to society from an extra bit of saving transformed efficiently into capital formation, is not only independent of the possibility of defining marginal productivities, but is also independent of the institutional arrangements of an economy, while the ob-

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(1) Solow suggests that if the whole economy can be thought of as a bank capable of paying 15-20 percent. interest, then it would be in society's interest to find institutional arrangements of making somewhat larger savings in the U.S. because the rates of investment considerably higher than the current ones would be socially desirable.

served market rate of interest is not.[2] The former is usually identified with the shadow interest rate, and then most economists postulate the market rate of interest to be equated to this shadow rate on the basis of the assumption that the only possible equilibrium interest rate in a perfect capital market is the rate of return on investment. But in real world, the contractual market interest rate (i.e. the rate of return on saving) seldom equals the rate of gross profits. After all, no one these days gets surprised at the fact that market wage rate seldom equals the shadow wage rate which theoretically assures full employment of labor.

If given real forces determine the rate of return on capital and if outside forces keep the rate of interest at a given level, and if the two have to be equal, what we get is, as Sen [13] says, a classic case of an irresistible force meeting an immovable object. For instance, in a one-commodity neo-classical system, the given stock of capital and labor determines the rate of return on capital which coincides with the definition of the marginal productivity of capital and is called the profit rate. If a rate of interest is given from outside, say, maintained by the government adjusting the supply of money to achieve this objective, and yet if we want to equate the profit rate with the interest rate, the system will be over-determined.[3] The capital stock is a variable depending on the level of investment. In the context of a growth model, however, we get the Harrod's problem of a knife-edge balance between warranted rate of growth (saving propensity times output-capital ratio) and natural rate of growth (population growth rate plus the rate of technical progress). The marginal productivity theory makes these two rates coincide by treating the capital-output ratio as a variable. However, if corrective factor price movement is prevented

(2) One-period rate of return is defined as the extra consumption possible in the following period with the understanding that, at the end of the period, the stock of machines must be what it would have been if extra bit of saving had never occurred. Under stationary conditions, the one-period and perpetual rates of return are the same.

(3) That is, if we want to postulate a competitive equilibrium in which the rate of return on lending has to equal the rate of return on investment, and yet the rate of interest is given from outside, the system will be over-determined.

by an immovable interest rate which keeps the profit rate equal to it, something in the system must modified[4] (cf. Sen [13]).

Kaldor makes the two rates coincide by treating the saving propensity as a variable depending on the distribution of income between capitalists and workers.[5] Kaldorian model can work if the rate of accumulation requires a rate of saving in between the saving propensity of capitalists and that of workers.

Sen [13] thinks it is more realistic to assume that the rate of return on capital exceeds interest rate by a given margin, because of risks associated with business as opposed to lending.[6] Using Solow type of framework of analysis, Sen has tried to suggest that the interest rate is of no relevance to the Harrod type question and dose not have to equal the profit rate, the appropriate concept being that of the rate of return on capital.

In refining the Cambridge growth model, Pasinetti [8, ch. VI] examined the case of an interest rate which differs from the rate of profit. It turns out that the assumption of a rate of interest exactly equal to the rate of profit is not necessary for his analysis. Suppose that the workers also save but lend their savings to the capitalist-entrepreneurs in exchange for interest payments at a rate which is lower than the rate of profits the entrepreneurs can obtain. Pasinetti shows that the natural rate of growth and the capitalist-entrepreneurs' propensity to save determine the rate of profit on the capitalist-entrepreneurs' capital independent of anything else, and therefore also independent of the rate

(4) Even if one replaces the fixed coefficients of Harrod-Domar model by the flexible elasticity of substitution of the linear homogeneous production function, the capital-output ratio gets fixed from the outside, if we want to equate the profit rate with the interest rate.

(5) "In the long run, if full employment and full capacity utilization are to be kept, the rate of profit is determined by the natural rate of growth divided by the capitalists' propensity to save, independently of any productivity of capital... is even independent of capital. In the long run, capital itself becomes a variable; and it is capital that has to be adapted to an exogenously determined rate of profit, not the other way round" (Pasinetti [8, p. 144]).

(6) Neither Kaldor nor Solow introduced an independent investment function that can define the concept of expected rate of growth or animal spirits of the entrepreneurs. Such an additional equation may further overdetermine the system, implying that something else has further to be given up. This is why Joan Robinson views the case when the animal spirits of the entrepreneurs make them invest just the warranted amount as purely accidental.

of interest. The income to the capitalist-entrepreneurs will consist of gross profits on their capital which include the imputed interest payments on their capital ownership, and the difference between the interest payments on workers' capital lent to them and the gross rate of profits on this capital. An interest rate lower than the rate of profit must therefore redistribute income in favor of the class that employs the physical capital. Furthermore, the equilibrium share of total capital stock owned by the capitalist-entrepreneurs must become larger.

II. Interest

According to Schumpeter [12, pp. 930-931], the simplified version of Böhm-Bawerk's theory of interest may read like this: interest arises from the interaction of psychological time preference with the physical productivity of investment. A straightforward application of the theory of pricing would then lead one to regard the interest rate as being determined by the interaction of the rate of return to capital on the demand side and the Fisherian time preference between present and future consumption on the supply side. Nonconsumption (or abstinence) means the acquisition (or reward) of future income by releasing resources that can be utilized in capitalistic process of production. The interest rate equalizes saving and investment and determines the allocation of national income between present consumption and provision for future growth (Bronfenbrenner [1971, ch. 12]).

According to Keynes [5, pp. 165-167], the rate of interest also depends on the form in which the saver wishes to hold whatever he saves, i.e., on his liquidity preference. When people save, they may decide not to invest at all but to keep their savings in the form of money. Interest rate must then equalize the advantages of holding cash (the one ideally liquid asset in existence) and other assets. The Keynesian theory, taken literally, yields the conclusion that an increase in the propensity to invest (or consume) will only increase

employment but have no tendency to raise the rate of interest. Planned saving and planned investment determine total net output but not interest. And a number of paradoxes follow for which some verification can be found in the freakish situations of deep depression (Schumpeter [12, p. 1179]). The changes in the marginal efficiency of investment and the propensity to save cannot have a direct impact on the interest rate given the supply of liquidity. The effects on the interest rate must operate indirectly through their possible effects on income.(7) However, according to Robertson [10], a change in the propensity to save which shifts the schedule of planned consumption or a change in planned investment will bring about a change in interest rate in order to redress the current money market equilibrium without operating indirectly through the multiplier, i.e., will have a direct effect on the rate of interest before the multiplier effect on income has time to work out (cf. Tsiang [17]).

Robertson [9] describes the market for loanable funds by a demand curve representing the declining marginal productivity of new lendings in industrial use and by a supply curve of loanable funds representing the rate of new available savings. In equilibrium, the rate of interest at which the two curves intersect is the natural rate at which the new lendings which can be absorbed by industry per atom of time and the new available savings per atom of time are equal and at which the banks are continually renewing loans. All new borrowing and lending is intermediated by Wicksellian banks (see, Wicksell [18]). Firms must finance all their investment by issuing new securities. Hence the supply of new securities represents the demand for loanable funds. Individuals buy indirect securities (deposits) and banks buy new securities from firms (make loans). If banks set market rate too high, deposits will accumulate faster than

(7) The Keynesian theory of interest handed down "a body of doctrines according to which saving does nothing to finance investment that consumption cannot do equally well; all saving does is to lower the level of activity and employment, and hence, it is a selfish, antisocial act; investment can always generate an equal amount of saving automatically to finance itself; the rate of interest should, therefore, be kept low at all times even in the face of inflation to stimulate investment; the money supply is a matter of no concern, since the elasticity of speculative demand for liquidity is believed always to be so great as to eliminate all its influences, etc." (Tsiang [17]).

loans.[8] By defining saving as indentically equal to investment, Keynes had destroyed the basis for the loanable funds theory of the natural rate of interest that is determined by productivity and thrift (see, Kohn [7]).

A modern view is that the rate of return on the stock of real capital must be related with the rate of return required to induce the public to hold willingly the volume of real capital in existence at the moment as well as the increments contributed by current saving. This required rate in turn depends on the volume of financial assets in the portfolios of the public and on the monetary and fiscal policies (Tobin [16]). The demand for cash balances is significantly competitive with demand for various types of earning asset such as securities. On the other hand, the supply of loanable funds may be more elastic than that of savings. At high interest rates, the banking system may expand loans by reducing the reserve ratio and individuals may dishoard by drawing down money balances without simultaneous saving, waiting (Marshall), or abstinence (Jevons).[9]

The time preference theory gives the leading role to the marginal rate of return on consumption; the marginal productivity theory gives it to the marginal rate of return on capital; the liquidity preference theory gives it to the

(8) If there is an exogenous fall in the marginal efficiency of capital and yet the market rate of interest is prevented from falling to the new natural rate by the speculators who are willing to satisfy the excess demand for securities at the original natural rate, then there will be a deflationary pressure on the economy causing income to fall because the intervention by speculators (stabilizing the rate of interest) implies a leakage of funds out of the circular flow and into the hands of the intervening agent. The fall in income causes lower net available savings at any given rate of interest by shifting the supply curve of loanable funds. The market-clearing rate of interest at the given fall in income is called the quasi-natural rate which could be pushed all the way back to the natural rate resulting in an unemployment equilibrium. The intervention of speculators in the loanable funds market prevents the increased propensity to save from being translated into increased investment (Kohn [7]).

(9) According to Wicksell, the natural interest rates are set by equating investment demand and voluntary savings, with the volume of active (unhoarded) money constant. The market rates are set by equating the actual demand and supply for loanable funds. Expansion or contraction of loanable funds by banks may be offset by net hoarding or dishoarding by nonbankers. According to Robertson [10], the act of thrift lowers the rate of interest directly cthrough swelling the money stream of demand for securities (which raises the price of securities). This fall in interest rate may in turn increase the proportion of resources over which people wish to keep command in monetary form.

marginal rate of return on money; and the loanable funds theory deals directly with the marginal rate of return on securities. To the extent that people act in accordance with the marginal principle, there tends to be equality among the four marginal rates of return. One can imagine various sets of conditions under which each of the rates predominates, lending the corresponding "theory" to be called the theory of interest. For instance, under an arbitrary monetary policy, the monetary authority can change the rate of interest at will by influencing the demand or supply of loanable funds. Hence, in this case, only the loanable-funds theory fully explains changes in the rate of interest. The other marginal rates of return, then, follow as best they can (Somers [15]).

According to the marginal productivity theorists, saving, capital accumulation and consequent capital deepening reduces the marginal product of capital (which in equilibrium is postulated to be equal to the rate of interest) and simultaneously raises the marginal product of labor. The ideology is that, the greater the thrift of capitalists, the greater the rate of capital accumulation and faster the rate of increase in the real wage. Workers benefit from the thrift of the capitalists and interest is a reward to the capitalists for their abstinence.

In a long-run steady-state equilibrium model, the relationship between the present price of present goods and the present price of future goods defines an interest rate. In the context of a perfect competition model, this interest rate measures the marginal return of investment (say, the rate of profit) at steady-state equilibrium prices, although it is not determined by this return. The producer does not determine the interest rate. It is only possible to examine whether the observed interest rate is an equilibrium rate, while simultaneously, finding an interpretation for it. It general, what determines the equilibrium interest rate are all the equilibrium equations describing consumption and profit maximizing production agents. The marginal productivity formulation simply states the requirement that, at the going prices

and the interest rate, profits should be maximized[10](Hahn [1, pp. 4-5]).

III. Profit

It may turn out in theory that the rate of return on capital (or investment) should equal to the rate of interest. But then it may not. Therefore, one has to draw a conceptual distinction between interest as the pure return to capital and (net) profit as the (net) income of those who hire the capital.[11] If we adopt a dynamic framework of analysis we may assume that the adjustment to equilibrium occurs slowly, if at all. In this case, the Schumpeterian entrepreneur generates a profit in national income account which is not considered an input payment in the usual sense, but rather a pure residual containing the element of a windfall profit or loss. According to Schumpeter [11, p. 130], a typical entrepreneur creates his business by borrowing purchasing power from a bank at a contracted interest rate; his profit is the surplus over cost. Entrepreneurial profit is not a rent like the return to differential advantages inherent to the permanent elements of a business. Profit is not determined according to marginal productivity; what the marginal entrepreneur receives is wholly a matter of indifference to the success of others. Wages are an element in price, but profit does not enter into the price of the products[12] (*ibid.*, p. 153).

The classical economists, from Adam Smith onward, recognized profit as a

(10) Cf. "[I]n order to say anything about share and rate of profits, one needs first a theory of the rate of interest. In a long-run equilibrium model, the obvious hypothesis to make is that of a rate of interest equal to the rate of profit" (Pasinetti [8, p. 109]). Acccording to the marginal productivity theorists, on the other hand, the rate of profit is determined by the marginal productivity of capital (*ibid.*, p. 131).

(11) Furthermore, profit may not be regarded as an income share on a flow basis rewarding a contribution to the on-going production process. It may be viewed as a capital gain reflecting an improvement in production technique and thus an increase in the value of ownership of a business.

(12) "The size of profit is not as definitely determined as the magnitude of incomes in the circular flow. In particular it cannot be said of it, as of the elements of cost in the latter, that it just suffices to call forth precisely the 'quantity of entrepreneurial services required'. Such a quantity theoretically determinable, does not exist... the connection between quality of service and private success is here much weaker than for example in the market for professional labor" (Schumpeter [11, pp. 154-155).

form of income distinct from interest which is a payment for the bare use of capital. One may define profit as compensation for the uncertainty arising from the lack of any contractual claim to recompense. In other words, we may consider profit as income to persons who accept all or part of the residual left after contractual claims are honored. This residual includes gains arising from the capitalization of ownership of income in excess of competitive returns on resources invested (Bronfenbrenner [1971, pp. 327-373]).

Clark regarded profit as the lure which induces businessmen to make improvements in any direction, and the income which is eliminated by competition. Walras and Cassel also explained profit as the result of friction in the working of the competitive system (Knight [6, p. 483]). Schumpeter considers profit as the consequence of innovation based on the dynamic character of society, and Knight saw profits stemming from the uncertainty and the noninsurable risk associated chiefly with economic change. According to Schumpeter [11, p. 132], an entrepreneur carries out new combinations of existing means of production; there arises a difference between receipts and outlays which is a definite, although temporary, amount of net return; a complete reorganization of the industry occurs stimulated by the alluring profit; a new equilibrium position is reached in which the law of cost again rules; consequently, the surplus of the original entrepreneur and his immediate followers disappears.[13]

In the absence of Schumpeterian profits, the maximum net profits (i.e., net of interest payments) that can be associated with an Arrow-Debreu equilibrium price set with constant returns to scale technology is zero. When certain necessary inputs, such as entrepreneurship, are fixed in supply to a firm, we may

(13) "[T] he organization itself, still unknown, requires special aptitude to set it up. However, if anyone has in him all that pertains to success under these circumstances, and if he can obtain the necessary credit, then he can put a unit of product on the market more cheaply,... creates a model for (others) which they can copy. They can and will follow him, first individuals and then whole crowds. Again that process of reorganization occurs which must result in the annihilation of the surplus over costs, when the new business form has become part of the circular flow. But previously profits were made" (Schumpeter[11, p. 133]). "The entrepreneur is never the risk bearer. The one who gives credit comes to grief if the undertaking fails" (*ibid.*, 137).

expect decreasing returns to scale (though it appears to contradict the definitions of decreasing returns) that can generate positive net profits, which one may prefer to regard as rents within the framework of Arrow-Debreu equilibrium. "Economists who have wished to explain the existence of profits empirically have not regarded decreasing return as of major significance" (Howard [3, p. 83]). Instead, emphasis has been placed on three phenomena not considered by the Arrow-Debreu model: disequilibrium and temporary market power associated with innovating entrepreneurs (Schumpeter) and non-insurable uncertainties (Knight). Then there are no uniform rate of net profits.

IV. Rent

Factor prices can be conceptually divided into two elements: the payment necessary to keep the factor in a particular employment, corresponding to the classical notion of wages; and a surplus above the necessary payment to induce the factor to do its work (arising from scarcity of the factor and complete inelasticity of its supply) corresponding to the classical notion of rent which the free gifts of nature receive (Johnson [4]). A generalization of the Ricardian concept of rent includes quasi-rents to fixed capital whose stock are constant only in the short run.(14) A similar generalization includes a "rent of ability" to types of labor and personal services that are similarly limited (Bronfenbrenner [1971, p. 349]).

With constant returns to scale in each industry, firms of superior managerial efficiency can still enjoy a profit. This implies that there will be left-over income, which accumulates to the entrepreneur after the marginal productivity payments to the conventionally defined labor and capital factors. However, the

(14) During the period of adjustment following any major change, a productive resource whose supply does not equal demand will tend to command a premium above the interest on its cost in the expanding industry. This payment is called a quasi-rent by Marshall. To the extent that the hire paid by producers themselves lags, the difference will appear as a profit to the entrepreneurs concerned. If there are permanent and unproducible specialized resources, they will command a price which fits the classical theory of rent (Knight [6]).

"imputed rental value of the superior efficiency factor" will arithmetically enable the exact exhaustion of the product. With decreasing returns to scale, payments remitted according to the (conventionally defined) factors' marginal productivities will generate a residual income (producers' surplus) whose legitimate title is not altogether clear. With increasing returns to scale, payments to factors according to the value of their marginal product will over-exhaust net output. However, factors are paid according to their marginal revenue product which can result in "monopolistic profits" to the entrepreneur. According to Schumpeter and Knight, monopoly profits and similar gains, not traceable to innovation or uncertainty-bearing, are defined as rents or surpluses rather than as profits.

V. Concluding Remark

In the modern Western corporation, salaried managers and directors are ultimately responsible for decision making and input organization; while the ultimate uncertainty-bearing is shouldered by stockholders who are, for the most part, merely passive suppliers of capital. Stockholders bear the risks but exercise no real entrepreneurial control.(15) With ownership largely separated from control, any theory of profit that assumes the union of "uncertainty-bearing," "decision-making" and "factor-organizing" appears to reflect the so-called "folklore of capitalism" when capital was typically employed in business by its owner.(16) However, Korea, in the latter half of the twentieth century, may more

(15) "It must be recognized, however, that the stipulated remunerations or wages of management of corporation officials, whether stockholders or not, is at best most inaccurately adjusted by market competition to the true value of the service rendered, and hence is likely to be largely profit in the analytical sense. Notoriously, too, officials' salaries in many actual cases represent in large measure a distribution of the revenue alternative in form to stock-holders' dividends; the difference is a matter of internal politics of corporation rather than of economic theory" (Knight [6, pp. 480-486]).

(16) A theory that allocates a firm's entrepreneurial functions to that artificial personage, the firm itself, gives no clue to the allocation of profits among the natural persons comprising the corporate ownership and control groups. This theory relegates profit allocation to the indeterminacy of corporate infighting (Bronfenbrenner [1971, p. 369]).

closely resemble the folklore of capitalism than the modern Western society. Thus, in analyzing the Korean economy, one may rationalize profits in terms of the uncertainty-bearing, the decision-making and the factor-organizing elements combined. An immediate implication is that the existence of profit and rent residuals renders the currently fashionable two-factor neo-classical model less suitable to analyze the labor share in the national income, though it may still be reasonable to commence an exploration of income distribution at first from the equilibrium of zero profits in which wage and interest payments to workers and capitalists exhaust total output. Since such a postulation is bound to ignore the critical phenomena of uncertainty and innovations in an actual economy, the framework of the simple two factor aggregate production function marginal productivity theory should then be extended such as to allow for the prevalence of rent and profit. That is, the Schumpeterian profits and the Marshallian quasi-rents which arise in disequilibria and short period equilibria should be added onto the neoclassical zero profit functional income distribution so that whenever the observed income distribution seems to deviate from what the simple "neoclassical" theory predicts, such deviations may be regarded as being caused by Ricardian rent, Marshallian quasi-rent, and Schumpeterian profit.

References

[1] Hahn, F.H., *The Share of Wages in the National Income*, London: Weidenfeld & Nicholson, 1972.

[2] Hashimi, R., *Studies in Functional Income Distribution*, East Lansing: Michigan State University Press, 1960.

[3] Howard, M.C., *Modern Theories of Income Distribution*, London: Macmillan, 1979.

[4] Johnson, Harry G., "The Political Economy of Opulence," *Canadian Journal of Economics*, November 1960.

[5] Keynes, John Maynard, *The General Theory of Employment, Interest and Money*, London: Macmillan, 1936.

[6] Knight, Frank H., "Profit," *Encyclopaedia of the Social Sciences*, Vol. XII, New

York: Macmillan, 1934, pp. 480-486.

[7] Kohn, Meir, "A Loanable Funds Theory of Unemployment and Monetary Disequilibrium," *American Economic Review*, December 1981.

[8] Pasinetti, Luigi L., *Growth and Income Distribution*, London: Cambridge, 1974.

[9] Robertson, Dennis H., "Industrial Fluctuation and the Natural Rate of Interest," *Economic Journal*, December 1934.

[10] Robertson, Dennis H., *Essays in Monetary Theory*, London: P.S. King, 1940.

[11] Schumpeter, Joseph A., *The Theory of Economic Development*, Cambridge: Harvard, 1934;1959.

[12] Schumpeter, Joseph A., *History of Economic Analysis*, New York: Oxford, 1954.

[13] Sen, Amartya K., "The Money Rate of Interest in the Pure Theory of Growth," in *The Theory of Interest Rates*, edited by F.H. Hahn and F.P.R. Brechling, London: Macmillan, 1965.

[14] Solow, Robert M., *Capital Theory and the Rate of Return*, Amsterdam: North-Holland, 1963.

[15] Somers, H.M., "Monetary Policy and the Theory of Interest," *Quarterly Journal of Economics*, Vol. LV, 1940-41, pp. 488-507.

[16] Tobin, James, "Capital and Other Stores of Value," *American Economic Review*, May 1961.

[17] Tsiang, S.C., "Keynes's 'Finance' Demand for Liquidity, Robertson's Loanable Funds Theory, and Friedman's Monetarism," *Quarterly Journal of Economics*, May 1980.

[18] Wicksell, Knut, *Lectures on Political Economy*, London: Routledge, 1905;1935.