Notes on consumption, investment and effective demand

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The purpose of these Notes is to reconsider the theoretical problems raised by the question of the long run influence of consumption on investment.

Current economic theory does not appear to provide a generally accepted answer to this question: its position on the issue is ambiguous and contradictory. Pre-Keynesian theory gave a simple answer: the level of investment is determined by the community’s decision to save, allowance always being made for frictions not dissimilar to those admitted in other parts of economic theory. In order to obtain a larger volume of investment, consumption should be discouraged. The criticism by Keynes has shown the weakness of this traditional answer. But while Keynes’s different conclusions have been generally accepted for the analysis of trade cycles and other short-period phenomena, the theoretical situation remains uncertain with respect to the long period, which is our primary concern here. With respect to long-period

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analysis some discussions of Keynes's theory, conducted on the assumption of flexible wages and prices – or, more realistically, on the assumption of a flexible monetary policy - have, in fact, created a climate of professional opinion by no means hostile to a reaffirmation, in less rigid terms, of the traditional theory – though they have not succeeded in restoring to that theory the confidence it once enjoyed.

Our consideration of the problem has seemed useful because the terms in which the question has been discussed so far may be significantly modified, in the present writer's view, by the recent criticisms of the notion of 'capital' as a factor of production.

The traditional doctrine, in which planned investment adjusts to planned savings, appears to be centred on the idea of an investment demand function elastic with respect to the rate of interest. This idea has not been disputed in the course of the Keynesian controversy, at least with respect to long-run conditions. Keynes himself adopted it in the form of the 'marginal efficiency of capital' and focused his criticism on the notion that the rate of interest would be flexible enough to be the equilibrator of saving and investment decisions. This particular course, followed by the Keynesian controversy, is important, we believe, for an explanation of the present theoretical uncertainty concerning problems of capital accumulation. The notion of a demand function for investible resources has, in fact, provided the main basis for attempts to confine to short-period conditions the obstacles which impede the equilibrating role of the rate of interest and has thus favoured the persistence, in part of the literature, of a confidence in the traditional theory of accumulation.

We shall argue in these Notes that this notion of an interest-elastic investment demand function has its basis in the conception of capital as a factor employable in production in proportions which will increase, relative to other factors, as the rate of interest decreases. It follows that the recent criticism of this conception of capital has an important bearing on the question of the influence of consumption on investment. We shall indeed argue that such criticism provides a firmer ground for the rejection of the long-period dependence of investment on decisions to save.

These Notes will consist of two parts. In Part I we shall investigate the premises from which traditional theory derived the assertion that there exists a tendency for effective demand to adapt to productive capacity. We shall see in section 1.1 how this is the question which lies behind the problem of the relation between consumption and investment. The analysis will begin, in section 1.2, by distinguishing between two theoretical approaches which Keynes included in what he called the 'classical school': that of Ricardo and the 'classical school' proper, on the other hand, and, on the other, that of the later marginalist theories to which Keynes was in fact referring. In sections 1.3-1.6 we shall then proceed to argue that it is in these latter theories only that we can find premises supporting the traditional thesis. In section 1.7 we shall then discuss the validity of these premises, and conclude that, even if we remain within the limits of an analysis conducted in 'real' and 'static' terms – abstracting, that is, from the obstacles which the monetary system and the state of expectations may raise for an equilibrating process - economic theory does not seem to provide a sufficient basis for the idea that market forces can ensure the adjustment of decisions to invest to decisions to save in the long period.

In Part II the question will be taken up in the context of monetary theory, within which Keynes conducted his criticism of traditional theory. We shall then examine the subsequent attempts to support the traditional doctrine by means of an analysis founded on the hypothesis of flexible money wages, or alternatively, a flexible monetary policy. We shall seek to show that these attempts rest crucially on the hypothesis of a high interest elasticity of investment. At this point we shall refer back to the result of the analysis in 'real' terms conducted in Part I and conclude that even in long periods and in normal situations, investment will be independent of saving decisions, at least below the limit set by the community's saving in conditions of full utilisation of productive capacity and constancy of the level of prices.

Part I: 'Real' analysis

1.1. The tendency to a full utilisation of productive capacity

As is well known, the position of traditional theory on the relation between consumption and investment derives from the idea that the aggregate demand for output tends to the level which ensures the full utilisation of the available productive capacity. Let us in fact assume a rise in the relevant part of the curve representing the community's propensity to consume. If productive capacity always tended to be fully utilised, the increased output of consumption goods could only be obtained by decreasing the output of capital goods, i.e. by decreasing investment. Traditional theories did not, of course, ignore the possibility of 'frictions' capable of delaying the achievement of full utilisation of productive capacity; it was in terms of these 'frictions' that trade cycles were explained. But this admission did not alter the conclusion that the volume of investment, taken as an average over a normal succession of periods of prosperity and depression, would be determined by the community's decisions to save.

However, when we admit, as Keynes did, the possibility of equilibria with partial utilisation of productive capacity, the traditional thesis can no longer be maintained. An upward shift of the schedule of the propensity to consume might in fact result in an increased utilisation of productive capacity and might therefore result in a constant, or even an increased, volume of investment. The question of the effect on investment thus remains open.

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A closed economy will be assumed; we shall also abstract from all state economic activity other than monetary policy.
ment might decrease if production is close to the limit of productive capacity, but the opposite effect is also possible – and indeed probable if there are margins of unutilised productive capacity, whether they be large or small.

In the following sections we shall examine the premises from which traditional theory derived the doctrine that market forces lead to the full utilisation of productive capacity. Before proceeding to this examination, however, an observation must be made. By productive capacity we have so far meant the equipment of capital goods in existence in the economy in a given situation, together with only that part of the total supply of labour which is required for the full utilisation of this equipment. By this definition we have departed from the terms in which the controversy between Keynes and traditional theory was conducted. It was there assumed that a full utilisation of the existing capital equipment would allow for the employment of the entire labour force.

The more general notion of productive capacity we have so far used would seem to be the appropriate one in discussing long period tendencies, where unemployment of labour from below-capacity utilisation of equipment may itself generate so-called ‘structural’ unemployment unless it is quickly corrected; indeed this notion of capacity has been that on which the traditional thesis of the alternative between consumption and investment had to be based in order to apply it to economies with ‘structural’ unemployment. A difficulty however would be raised by using the general notion in the rest of this paper, for the assumptions by which such ‘structural’ unemployment has been reconciled with traditional theory i.e., fundamentally, the existence of circumstances imposing a real wage higher than that which competition would enforce, and the lack of a sufficient variability in the proportions between capital and labour) would interfere with an examination of the Keynesian controversy in its own terms. We have accordingly decided to separate the two issues: our examination of the Keynesian controversy will be carried out under the assumption that existing equipment suffices to employ the entire supply of labour, whereas the applicability of our conclusions to an economy with ‘structural’ unemployment will be considered later, at the end of Part II of these Notes.

1.2. Ricardo and ‘Say’s Law’

As soon as we consider the questions of the premises from which the traditional theories drew the conclusion about the tendency to ‘full employment’, it becomes necessary to distinguish clearly between the two types of theories which Keynes included in what he called the ‘classical school’. According to Keynes that school included Ricardo and ‘the followers of Ricardo ... who adopted and perfected the theory of the Ricardian economics, including (for example) J.S. Mill, Marshall, Edgeworth and Professor Pigou’ (Keynes, 1936, p. 3). Now, the theory of Ricardo, on the one hand, and the theories of Marshall and Pigou (and more generally the theories developed in the last quarter of the past century) on the other, differ radically on the principle of full employment. While this is not the place to deal with the question at all exhaustively, we have to consider it because we shall find that we must confine our attention to the second group of theories alone.

Apart from Marshall’s tendency to present his own doctrines as a continuation of Ricardian theory, what more specifically led Keynes to identify Ricardo’s position with that of Marshall and Pigou in this respect, was a particular interpretation of the famous controversy between Ricardo and Malthus on the possibility of a ‘general glut of commodities’. On closer examination, this interpretation appears to have been seriously misleading.

Malthus held that an accumulation of capital at the expense of ‘unproductive consumption’ (the consumption of classes other than the workers) would cause a rapid fall of the rate of profit and would thus eliminate the incentive to further accumulation. This fall would result from the decrease in prices due to the difficulty of finding outlets for the increased production. In Malthus’s words:

under a rapid accumulation of capital ... the demand, compared with the supply of material products, would prematurely fail, and the motive to further accumulation be checked, ... it follows that ... it is necessary that a country with great powers of production should possess a body of consumers who are not themselves engaged in production (Malthus, 1958, p. 398).

Ricardo, for his part, rejected the idea that accumulation would be limited by a lack of outlets for the increasing output, asserting that ‘demand is only limited by production’ (Ricardo, 1951, p. 290).

The question under discussion between Malthus and Ricardo thus exhibits undoubted similarities with that which was under discussion, more than a century later, between Keynes and Pigou. These similarities may be expressed by saying that Malthus, like Keynes (and numerous authors who were Malthus’s contemporaries or predecessors), recognised the possibility that demand could set a limit to aggregate production, whereas Ricardo, like the ‘orthodox’ contemporaries of Keynes, denied that possibility. But it would be an error to move from acknowledging a similarity in the question under discussion to asserting a similarity in the analysis of that question. In particular, it would be an error to attribute to Malthus and Ricardo something akin to the theoretical core of the controversy between Keynes and the orthodox economists, i.e. the question whether the rate of interest can ensure
that decisions to invest will adjust to decisions to save.³

The most evident deficiency of such an attribution is that both Malthus and Ricardo always identified decisions to save with decisions to invest:⁴ there could therefore be no disagreement between them concerning the existence of factors capable of equilibrating decisions to invest and decisions to save. In Ricardo and Malthus, as in Smith before them, the question of a possible divergence between the two magnitudes had not been posed. They took it as a fact that anyone who had saved would have used his savings to employ productive labourers, or would have lent it to others who would have so used it.⁵

When we consider the position of the classical economists in this light, it should not come as a surprise that we cannot find in Ricardo the idea that the rate of interest would be the 'balancing factor which brings the demand for savings in the shape of new investment ... into equality with the supply of saving' (Keynes, 1936, p. 165), which Keynes attributed to the 'classical school'. The rate of interest appears in Ricardo only as a phenomenon subordinate to the rate of profits and governed by the latter. No particular role is attributed to it, apart from that of distributing profits between those who lend money and those who bear the 'risk and trouble' of employing capital in production (see, for example, Ricardo, 1951a, pp. 296-8 and 363-4).

It seems that a more correct interpretation of the controversy between Ricardo and Malthus should begin by recognising that the question under discussion concerned the circumstances determining the rate of profits. Ricardo's theory of profits was being advanced against the vaguer dominant theory, which had its origins in Adam Smith and which Malthus adopted with some particular emphasis. Smith had asserted:

When the stocks of many rich merchants are turned into the same trade, their

³ Keynes advanced this interpretation in his essay on Malthus written in 1933: see in particular the phrases 'Malthus's complete comprehension of the effects of excess saving on output' (Keynes, 1951, p. 118); or 'The whole problem of the balance between Saving and Investment had been posed in the Preface to the Principles of Malthus' (p. 122). This interpretation is again taken up in the General Theory, where Ricardo is considered as the originator of the 'classical theory' and, in particular, of the 'classical theory of interest' (Keynes, 1936, ch. 14, especially pp. 190-2). This interpretation, which remains flexible in Keynes, becomes more rigid in some Keynesian literature (e.g., Klein, 1950, pp. 25-30).

⁴ See, e.g., Malthus's acceptance of Ricardo's assertion that an increase of £10,000 in the income of an individual would bring about an increase in the demand for commodities of the same value, whether this increase were saved or consumed (Malthus, 1858, pp. 322-3). The fact that Malthus, like the other classical economists, tended to identify savings and investment, has been noted by R.L. Meek (1950-51, p. 156, n. ii); L. Robbins (1958, p. 248) and J.A. Schumpeter (1954, p. 641), and has been used by B.A. Corfi (1959) for a more general criticism of the prevailing idea that Malthus was a precursor of Keynes.

⁵ Nor can we find in these authors an analysis of the possible changes in the intervals of time elapsing between the acts of purchase and sale, an analysis which would have led, by another route, to the recognition of a possible divergence between planned savings and investment as they are defined today. A few decades after Ricardo's Principles, this kind of analysis brought Marx to reject 'Say's law' and the Ricardian position on the subject (cf., e.g., Marx, 1969, pp. 493-9).

⁶ In Malthus's Principles (1st ed., 1820) it is stated that the productivity of labour on the least fertile land under cultivation does not determine the rate of profits, but only establishes a maximum above which profits cannot rise. Below this limit profits would be determined by the circumstances to which Malthus variously refers as 'principles of competition', 'principles of demand and supply', 'demand sometimes specified by the adjective 'effectual' or 'effective', etc. (Malthus, 1858, ch. 3). Malthus expressly refers to Smith for his ideas on the subject: 'We can know little of the laws which determine profits, unless, ... [we] have recourse to that very principle of competition brought forward by Adam Smith, which Mr Ricardo expressly rejects' (Ricardo, 1951b, p. 269).

⁷ The question is dealt with in ch. 21 of the Principles, in the form of a criticism of Smith's theory (cf., in particular pp. 289-90). Also in the 3rd edition of the Principles (1821), published after Malthus's Principles, Ricardo does not explicitly refer to Malthus's ideas on the subject. He
1.3. The marginalist theories

The search for premises capable of supporting the principle of a tendency to full utilisation of productive capacity must therefore turn to the theories developed in the final quarter of the last century around the twin concepts of marginal utility and marginal productivity. These theories determine the relative prices of commodities and the distribution of the social product by means of three groups of data: (a) consumers’ preferences; (b) technical conditions of production; (c) the quantities of ‘factors of production’ available in the community. In equilibrium the relative prices of the commodities and of the services of factors of production would be such that the quantities of commodities demanded would be equal to the quantities produced and, at the same time, the quantities of factors’ services required in production would be equal to the respective quantities supplied. It is in this equality between demand for and supply of factors’ services – and not in Ricardo’s theory – that we find Keynes’s ‘classical’ principle of the tendency to ‘full employment’ of labour and other factors.

The premises from which the marginalist authors derived – or, in Keynes’s opinion, believed they could derive – the principle of a tendency to the full employment of factors are well known. They can be traced back to a particular conception of the social process of production. In this conception the elements required for production are treated as ‘factors of production’ which can be employed in the economic system in proportions which vary as the relative prices of their services vary. This, in turn, is the result of two characteristics of the economic system as envisaged in the marginalist theories. On the one hand, we have the ‘substitutability’ in consumption between goods which will generally require different proportions of the factors for their production. On the other hand, we have, for any given level of technical knowledge, the possibility of producing any commodity with different proportions of the same factors; under the assumption of continuous variability of factor proportions, this leads to the well known conditions of profit maximisation in terms of the ‘marginal products’ of the factors. By either route we arrive at an inverse relation between the price of the service of...
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In the General Theory he starts from an examination of the idea that changes in the wage rate would lead to full employment and he distinguishes two 'postulates'. He accepts the first, according to which the wage must be equal to the marginal product of labour, given the level of employment. In doing so, he accepts the conception of the productive process found in traditional theory. However, he rejects the second 'postulate', which states that 'the utility of the wage when a given volume of labour is employed is equal to the marginal disutility of that amount of employment' (Keynes, 1936, p. 5). Market forces, that is, would not succeed in equalising the quantity demanded and supplied of labour.

The argument which Keynes uses to deny that the flexibility of the wage would lead to the full employment of labour is founded on the premise that market forces cannot ensure that investment will adjust to savings. Given that premise, one must conclude that decreases in the money wage rate—the only wage rate on which the competition of unemployed workers can act directly—cannot ensure a tendency to full employment of labour. In fact, if entrepreneurs reacted to the decrease in wages by increasing employment, the level of real national income would rise and savings would then exceed investment. Since the latter would not adjust to the former, aggregate demand would be insufficient to absorb the increased production at its 'supply price' and output would be decreased. Indeed, if the fall of money wages should leave the level of investment unaffected, the employment of labour would have to return to its previous level, the only one at which saving is in equilibrium with investment. The only effect of the fall of the money wage would be a proportionate fall of the price level, leaving both the real wage and the amount of employment unchanged.

A detailed consideration of Keynes's position on the effects of a fall in wages must be postponed until Part II of these Notes. We have referred to the problem here only in order to bring to light the conclusion that the marginalist notion of a demand for labour elastic with respect to the real wage rate does not suffice to support the conclusion that competition among workers will lead to full employment. The further condition that investment adjusts to the changes in savings consequent on changes in employment is also required.

This second condition, concerning the dependence of investment on saving, is that which was referred to above when we discussed Ricardo and Malthus. The marginalist context is, however, very different from that of

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12 The concepts of national income, investment and saving used in the text are the generally accepted ones of gross national income, investment and saving. With regard to the well known ambiguity implicit in the use of the terms 'investment' and 'saving', it is sufficient to recall here that, while realized investment and saving are equal by definition, investment and saving may differ when we consider the quantities that would result from individual decisions under hypothetical circumstances, e.g. the amount of saving at a given level of real income, distributed in a given way, with a given system of relative prices, etc. The expressions 'decisions to invest' and 'decisions to save' or, alternatively, 'planned investment' and 'planned savings', will be used in the text to indicate investment and saving in this second sense.
those authors. The identification of decisions to save with decisions to invest, which explained Ricardo's acceptance of 'Say's law', is not to be found here. Instead we find the theory that the rate of interest is 'the factor which brings the demand for investment and the willingness to save into equilibrium with one another.'

Keynes's tendency in the General Theory was to consider this theory of interest as a further, unwarranted hypothesis that marginalist authors had introduced alongside the valid hypothesis concerning the variability of the proportions of factors of production in the productive process. It appears, however, that the theory of interest is in fact strictly dependent on those marginalist hypotheses.

In order to clarify this dependence, it is convenient to start by distinguishing two propositions in that theory of interest. The first concerns the possibility of establishing an inverse relation between the volume of planned investment and the rate of interest. The second proposition concerns the possibility of supposing that the interest rate is sufficiently sensitive to divergences between investment decisions and full employment saving to ensure its equilibrating role.

It is to the first of these two propositions that we must now turn our attention. The proposition is essential to the traditional theory, particularly when we admit, as generally done, that, given the level of real national income, the dependence of decisions to save on the rate of interest is uncertain in both direction and intensity. If we could not suppose that, on average and under normal conditions, a decrease in the rate of interest would bring about an increase in the volume of investment, we could not suppose that there would be a rate of interest at which planned investment would be equal to full employment saving. No ground would then be left for the second proposition above (on which Keynes was to focus his criticism), concerning the tendency of the rate of interest toward such an 'equilibrium level'.

It is in this relationship between the rate of interest and planned investment that the dependence of the traditional theory of interest on marginalist premises is most clearly manifest. To understand this dependence it first be necessary to consider why, and in what way, marginalist theorists have to introduce a special 'factor of production' — capital — conceived as the value of the capital goods used in production.

1.5. Capital as a factor of production and the demand function for investible resources

We have seen how the marginalist theory of distribution hinges on the notion of factors of production which may be employed in variable proportions in the economic system. Capital goods have to find a place among these factors. However, the application to capital goods of the notion of a factor, or factors, of production raises special problems. Capital goods, like other produce goods, have values which tend to equality with their supply prices. But free competition entails that the share of national income attributed to the owners of such goods, over and above what is necessary for their replacement, tends to be distributed in proportion to the value of those goods, so as to give rise to a uniform rate of return on all kinds of capital goods. If we consider this uniform rate of return from the viewpoint of these theories, in which each rate of remuneration is the price of the service of a factor of production, the various capital goods will ultimately have to appear as quantities, measured by their values, of a single factor of production, 'capital'. The net rate of return on capital goods, or rate of interest on 'capital', will then have to be determined by ultimately referring, in the forms considered below, to the conditions of demand and supply of this special factor.

We have so far identified a factor of production, 'capital', conceived as an amount of value which may assume the form of the specific capital goods appropriate to the situations considered. But, as an amount of value, 'capital' is not defined until we have specified the standard in which that value is to be measured. Between the variety and, at times, the vagueness of the indications given in this respect by the marginalist theorists, there lies a common idea. The capital goods, and hence the quantity of capital they represent, result from investment; since investment is seen as the demand for savings, 'capital' emerges as something which is homogeneous with saving. Its natural unit is therefore the same as we would use for saving, i.e., some composite unit of consumption goods capable of measuring the subjective satisfactions which (according to these theorists) consumers abstain when they save. 'Capital' thus appears as past savings which are, so to speak, 'incorporated' in the capital goods, existing at a given instant of time. As a result of the productive consumption of those goods, these past savings will periodically re-emerge in a 'free' form and can be re-incorporated in capital goods of the same or of different kinds; alternatively, they can be turned back into consumption.

Marginalist theorists then proceeded to apply the argument described in section 1.3; this special factor, measured in value terms, now being included alongside the others. In particular, they thought it possible to state that, given the quantities employed by the other factors, entrepreneurs would find it profitable to use a larger 'quantity of capital' the lower the rate of interest.

The application of this principle to the theory of distribution has taken two forms, which we shall now distinguish in order to show how either route...
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We thus find a demand function for capital elastic with respect to the rate of interest, but we do not immediately find a demand function for investment elastic with respect to the rate of interest. The latter, however, implied by the former or, more accurately, the former represents, in the form of a demand for a stock, a time sequence of demands for investment through which alone that stock-demand can be manifested and can determine the rate of interest. In any given instant the available 'capital' will not in fact be a 'fluid' which may quickly assume a form compatible with the conditions corresponding to any point of the demand function for capital. On the contrary, in any given instant 'capital' is incorporated in a given set of capital goods and it can only assume the appropriate physical form over a period of time during which most of the capital goods in existence are consumed and the available capital becomes 'free' to be reinvested in capital goods suitable for use with other techniques or in other productive sectors.

This relation between demand for capital as a stock and demand for investment can be seen in its most simple form if it is assumed that, in each industry, production takes place in an annual cycle and all capital is circulating capital (i.e. is entirely used up in the course of one year). If the wage rate and product prices are assumed to adapt without appreciable delay to the equilibrium compatible with the new rate of interest, the investment demand function at the end of each year will be nothing other than the demand function for capital as a stock. When there is fixed capital the analogous relation between demand for investment and demand for capital as a stock will be less simple but no less strict (see Appendix below, pp. 64-5).

The theory implies that such circumstances as delayed adjustments in the markets for labour and products, or irregularity in the age distribution of fixed capital, do not fundamentally alter the terms of the question. As a result, the interest elasticity of the sequence of demands for investment would reflect, on average, the elasticity of the demand for capital as a stock. Hence the significance of a demand for capital as a stock which exhibits, in a clear form, the basic tendencies which must emerge from the multiplicity of forces acting in any given moment of time.

By contrast, this multiplicity of forces is precisely what the second way of approaching the variability of the proportions between 'capital' and labour (and other factors) may seem to be dealing with. This second approach is that of Marshall and the tradition which he originated; it underlies both the controversy between Pigou and Keynes and the subsequent related literature. It is presented, less ambitiously, as a theory of the 'short period' and at times it seems that Marshall declines to claim it as a theory of distribution at all. Unlike the version of Clark and Böhm-Bawerk, it appears

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1. "advance" the remuneration to the 'original' factors of production (land and labour) during the time elapsing before completion of the consumption goods produced by them. In any given instant, this 'fund' would be 'embodied' in the capital goods, and it would be measured by their value in terms of consumption goods. As the rate of interest decreased (the wage increased), the 'time structure' of production was supposed to change so as to require a larger 'subsistence fund' in order to employ the same quantities of the 'original factors'. (Cf. the following footnote for Walras's still different approach.)

2. A demonstration of the inconsistency between a uniform rate of return on the supply price of capital goods and the treatment of the quantities of the various kinds of capital goods as data has been given by the author (Garegnani, 1960, Part II, ch. 3) and Appendix E. The problem is there considered as a criticism of Walras's theory of distribution which suffers from this very inconsistency.

3. Under more general assumptions, the 'demand function' for capital described in the text would result from the following procedure. We take as data: (a) the preferences of the consumers; (b) the techniques of production; (c) the available quantities of all factors except capital; (d) the criteria determining the distribution of ownership of capital goods (the quantities of which are among the unknowns of the equations) among the individuals; (e) the criteria determining the age distribution of fixed capital. For any level of the rate of interest - the independent variable in this system - the equations concerning the conditions of equilibrium in the markets for the products and for the factors other than capital will determine, in addition to the usual unknowns of a general equilibrium system, the physical quantities of the capital goods of the different kinds in use in the assumed equilibrium position. The prices of these capital goods being also determined by the equations, the quantity of capital employed in equilibrium for the given rate of interest can easily be obtained. By repeating this procedure for other rates of interest, we obtain the corresponding points of the demand function for capital. In short, we subtract from the usual equations of general equilibrium the one requiring equality between the quantity of capital employed and the quantity available; the degree of freedom which the system acquires permits the definition of the relationship between the quantity of capital employed and the rate of interest.

4. In a well known passage coming after he has given an example to demonstrate why entrepreneurs will invest up to the point where the 'marginal product' of capital is equal to the rate of interest, Marshall says, 'But illustrations of this kind ... cannot be made into a theory of interest, any more than into a theory of wages, without reasoning in a circle' (Marshall, 1920, V1.18).
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renounce the attempt to determine an equilibrium situation characterized by a uniform rate of return on the supply prices of the capital goods. It cannot avoid referring to the 'quantity of capital' available in the community as given magnitude. Instead, it takes as given the productive equipment existing in the various industries, on which a 'quasi rent' is obtained, depending on the level of the wage and the demand for the products. The real wage, on the other hand, is determined by the balance between the supply of and the demand for labour, the latter depending on the available productive equipment. The rate of interest results, finally, from the equilibrium between the current demand for investible resources and the current supply of savings. It is here, in the analysis of the investment-saving market, that the notion of capital as an amount of value appears as this group of theories (cf. the distinction between 'quasi rent on an old investment of capital' and interest on free capital', Marshall, 1920, V.9.5; also VI.2.6, VI.6.6).

Indeed, if we were to take literally the claims of these theories, and to confine ourselves to considering the capital goods as physically specified elements of a given productive equipment (modifiable only by means of current investment), it would be difficult to see how we could ever provide any theoretical basis for the notion, plausible as it may seem, of a demand function for investment elastic with respect to the rate of interest. We should be moving on the dubious ground of wages and prices determined according to a short-period analysis of the economy as a whole (for a critique of this particular group of theories, see Kaldor, 1955-56, pp. 90-1). In the course of such an analysis we would be faced by a multiplicity of factors, each of which may influence the demand for investment. We should thus have to take account of the disproportions between available equipment and the level of demand for products in each industry; the age structure of existing equipment and the connected irregular replacement requirements, etc. Above all, the hypothesis of a given productive equipment, whose physical composition in each industry, and distribution among industries, has not adapted to the state of demand for products, would force us to attribute a decisive role to the expectations which the entrepreneurs entertain about future changes in relative prices, demands for products, wage rates and the general level of prices. The attempt to determine the effects on investment of changes in the rate of interest on such indefinite grounds would seem liable to dissolve into casuistry concerning the influence of these changes on the expectations of entrepreneurs. And this influence would differ from situation to situation, thus making impossible any general and unambiguous conclusions concerning direction and intensity of the effects of interest on investment. Moreover, consideration of the influence of the rate of interest on the decisions of entrepreneurs regarding the techniques to be adopted for the new plant, and the product to be obtained from it, *19 would not permit any

*19 Numerous difficulties would be encountered in specifying this influence of the rate of interest. They would result from the short-period assumptions and the consequent conclusion to be drawn concerning the amount of investment involved, if the comparison between techniques and lines of production were conducted in terms of equipments defined in physical and not in value terms.

It is therefore evident that this cannot in fact be the basis on which the theories here described assert that 'the demand for the loan of capital ... obeys a law similar to that which holds for the sale of commodities ... When the price rises the amount that can be sold diminishes' (Marshall, 1920, VI.1.8). It must then be supposed implicitly that the circumstances characteristic of the short period (the disproportions in the physical composition of the available equipment, and the influence of expectations) are classified with those to which Marshall referred as 'passing events ... and causes whose action is fitful and short lived', so that over a sufficiently long period of time they 'efface one another's influence' and allow the 'persistent causes' to emerge. And these 'persistent causes', to which we are thus referred as the basis for an investment demand elastic with respect to the rate of interest, are ultimately the same as those analysed by the first group of theories: i.e. the substitution between factors (through both alternative techniques of production and consumers' choices) as a result of which a fall in the rate of interest would lead to an equilibrium position such that the proportion in which 'capital' (the value magnitude) is combined with other factors is larger (Marshall, 1920, V.3.7). The different starting point - i.e. the physically specified equipment - and the apparent realism of the second group of theories appears to have obscured but not altered the basis on which the supposed inverse relation between investment and interest, essential for both groups of theories, must rest in the last analysis.

1.5. The premises of marginalist theory and the tendency to the full utilisation of productive resources

Our search for the premises of the traditional thesis that aggregate demand tends to adjust to the level of production thus seems to lead us to the marginalist conception of the process of production. This conception has, in effect, provided the theoretical basis for an inverse relation between the amount of investment and the rate of interest and hence for the first of the

indefiniteness of the effects which the rate of interest will have on real wages and the system of relative prices. On the other hand, with real wages and relative prices expected to remain constant, there is no reason why, assuming perfect competition and a fall in the rate of interest, the tendency to profit maximisation should lead entrepreneurs to change the techniques of production, rather than simply to expand the scale of production to profit from the gap between the rate of profits and the rate of interest. Under the assumptions of the theory, in fact, the individual producer always has the possibility of acquiring additional quantities of labour, the limit set by the available labour force can only influence the entrepreneur's decisions through increases in wages. More generally, investment decisions taken by the entrepreneurs in the expectation that the ruling rate of wages and the relative prices will remain unchanged could hardly be realised, since they would have to be revised as soon as the effects of the change in the rate of interest on prices and wages became perceptible.
two propositions which we distinguished above (p. 32) in the traditional theory of interest.

That relation once admitted, the marginalist approach to the theory of distribution led naturally to the second step: to suppose a sensitivity of the rate of interest to a divergence between planned investment and planned savings sufficient to tend to eliminate that divergence. This step was in fact taken when the rate of interest was considered (sometimes more explicitly, sometimes less so) as the price for the service of 'capital', determined by the conditions of demand for and supply of that factor, simultaneously with the prices for the use of the other factors.¹⁹

Since the General Theory, it has been widely recognised that this second step hid serious and perhaps decisive difficulties for the traditional theory of distribution. As Keynes showed, money in its role as a store of value may deprive the rate of interest of a sensitivity sufficient to adjust decisions to invest to decisions to save. A more powerful equilibrator between the two kinds of decisions can then act: variations in the level of employment of labour. And the controversy concerning the validity of the traditional thesis of the tendency to full employment has in fact been centred principally on problems related to the sensitivity of the rate of interest.

The basic idea of a demand function for investible resources has not been questioned, however. Nor is it surprising that criticism of the full employment thesis took this particular course. When, in the period between the two wars, the contrast between this thesis and the fact of large unemployment in the chief capitalist economies was particularly acute, criticism of the received theory naturally turned to the more empirical and less thoroughly explored monetary side of the theory, rather than to premises of pure theory which had by then acquired unchallenged acceptance. But the question we must now ask ourselves is whether those premises were in fact as solid as Keynes himself seems to have supposed. As we shall see in the next section, this question cannot be answered affirmatively.

It thus becomes possible, and necessary, to criticise the traditional view that interest is the equilibrator between saving and investment, while remaining within the confines of that analysis of 'real forces' in which this view was supposed to have its basis. The remainder of Part I of these Notes will be devoted to this question. The other criticism which Keynes conducted in terms of a monetary economy, and the controversy which ensued from it, will then be discussed in Part II. We shall there see how the uncertainty of

¹⁹ We may note, in this connection, the contrast which Keynes pointed out in these economists, between the general acceptance of the notion that the rate of interest is 'the factor which brings the demand for investment and the willingness to save into equilibrium with one another' and the difficulty of finding a treatment or even an explicit statement of the notion (cf. Keynes, 1936, pp. 1750). These authors rarely conducted a detailed analysis of the process by which savings are turned into increments of the capital stock; they derived their position on the question largely from the idea that the prices of the productive services are determined by the equilibrium between the respective quantities demanded and supplied (cf. e.g., Marshall, 1920, VI.2.4).

the conclusions of that controversy with respect to long-period tendencies will lead us back to the questions of 'real theory' discussed in Part I.

1.7. The validity of the marginalist postulates and the theory of interest

We have seen in section 1.5 how the competitive tendency to a uniform rate of profits ultimately brings the marginalist theorists to the notion of a factor of production, 'capital', measured in value terms; we also saw how the corresponding demand function finds concrete expression in a demand function for investible resources, elastic with respect to the rate of interest. What we must now discuss is the validity of these notions.

The difficulties arise from the fact that the introduction of the factor 'capital' is incompatible with the logical basis on which the marginalist schema of factors of production rests. The principle that the proportions in which the factors are employed vary with the prices of their services, so as to give rise to demand functions of these services, can in fact be deduced from the conditions of equilibrium in production only if the quantities of the factors can all be defined independently of the system of prices. But this cannot be done when one of the factors is the value of the magnitude 'capital'.

As the rate of interest and the wage rate vary, the switch of techniques or the change in the relative outputs of consumption goods might well change the proportions between the two factors in a direction contrary to that asserted in marginalist theory. [See the 'Symposium' in the Quarterly Journal of Economics, 1966, and Garegnani, 1970 (the final section of which is printed as an addendum to this chapter) (eds).]

In fact, when we recognise the dependence of the value of capital goods on distribution, it becomes meaningless to compare the proportions of capital to labour required by different techniques, or in different lines of production, in the unqualified way characteristic of traditional theory, and the same applies for any comparison of the proportions in which the two factors are used in the economy at different rates of interest and wages. With respect to the first type of comparison, the order in which the techniques for the production of a commodity are placed with reference to their proportions of capital to labour in the economy, the very direction in which this ratio will change with distribution will depend on the commodity in terms of which the value of the capital goods is measured. (The assumed change in the rate of interest may indeed change the relative value of two alternative standards of value in such a way that, when using one standard we have an increase in the ratio of capital to labour, whereas the use of the other standard will give a decrease in that ratio.)

If the marginalist principle concerning the way in which the proportions of factors change with distribution is incorrect, we may ask what theoretical basis, if any remains for the notion of demand functions for factors. In section 1.3 we examined the relation between the price of the service of a factor. We then considered how the negative slope of that function, and the
analogue form of the corresponding relation for the other factor, allowed these relations to be viewed as ‘demand functions’ capable of determining, in conjunction with the ‘supply functions’ of the factors, the prices of their services. Let us now follow the same line of argument, assuming that the two factors are ‘capital’ and ‘labor.’

Consider first the relation between the rate of interest and the value of the capital goods in use, assuming a constant quantity of labor employed and equilibrium in the markets for the products. The value of the capital goods employed will vary with the rate of interest for two different reasons, which we must now attempt to distinguish.

In the first place, we have changes in the value of the physical capital employed to which there corresponds no physical change in capital: these changes will be due purely to a change in the value of the capital goods relative to the commodity used as the standard of value.

In the second place, we have those changes in the value of physical capital to which there correspond physical changes in capital, which are due either to changes in the techniques adopted for producing the commodities, or to changes in the proportions in which these commodities are produced. The traditional thesis was that these changes in physical capital would ensure a rise in the value of the capital goods employed as the rate of interest falls, and vice versa. However, we now know that the analysis underlying this conclusion is invalid and that there is no reason why this second kind of change should have one sign rather than the other.

When we combine the two kinds of value changes that we have just considered separately, it seems that little or nothing of general validity can be said concerning the form of the relationship between the value of physical capital and the rate of interest. If we represent the relationship on a diagram, with the rate of interest on the vertical axis, the curve may just as well slope up to the right as down to the right, and it may alternate such slopes any number of times. Moreover, the form of the curve will depend on which commodity is used as the standard of value.

It seems, then, that even if the initial hypothesis of a constancy in the quantity of labor employed were well founded, the form which the relationship between the value of the capital goods and the rate of interest could assume would make it difficult to envisage it as a ‘demand function’ for capital — i.e., as the basis of a demand function for investible resources, capable of determining, together with a supply function of such resources, the rate of interest.

Yet the considerations which make this true of the relation between the rate of interest and the quantity of capital also undermine the validity of the assumption of constancy in the quantity of labor employed. As we have seen above, the traditional theory assumed a mechanism which equalised the quantity demanded and supplied of labor and thus ensured that the quantity employed would remain constant — or that it would change in accordance with the supply function of labor if this had some elasticity. But this equilibrating mechanism of demand and supply can no longer be assumed: the relationship between the real wage and the labor employed with a constant quantity of capital would show the same characteristics as the relationship between the quantity of capital and the rate of interest and hence could not be interpreted as a demand function, any more than could the first relationship.

What we have attempted to argue here throws doubt on the entire explanation of distribution in terms of demand and supply for factors of production. It does so for reasons altogether independent of any ‘Keynesian’ argument regarding the obstacles which money or the state of expectations may raise to the tendency towards ‘equilibrium’ in the markets for labor and investment. The questions in the theory of distribution which are thus opened up are the subject of the current debate on capital, and to these questions we shall have occasion to return in Part II. Our concern here is only that of showing the weakness of the premises underlying the notion of a demand function for investment elastic with respect to the rate of interest. Thus deprived of its theoretical foundation, that notion cannot, on the other hand, find genuine support on any purely empirical ground.

It therefore seems possible to assert that — even if the rate of interest could be assumed to be sufficiently sensitive to divergences between planned investment and planned savings — there would not be sufficient ground for arguing that the rate of interest could ensure that decisions to invest will adapt to decisions to save: nor would there be sufficient ground for arguing that aggregate demand will adapt to the level of production compatible with the full employment of the productive resources available in the economy. We shall return to these considerations in Part II, after discussing the criticism of the traditional principle of a tendency to the full employment of labor, which Keynes raised on the different ground of monetary analysis.

Part II: Monetary analysis

In Part I we looked for the premises from which traditional theory derived the assertion that aggregate demand would adjust to productive capacity. These premises were found to lie ultimately in the conception of capital as a

26 This relationship between the value of the capital goods and the rate of interest results from the procedure indicated in n. 16 above.

21 The changes in the rate of interest discussed here would imply changes in most of the variables of the system (the relative prices of the products, the levels of output, the labor employed, etc.), each of which may in turn react on the level of investment. It would therefore seem that the question of the influence of interest on investment can only be meaningfully discussed within a theoretical scheme which accounts for the relations between these variables. It seems unlikely that all these interrelationships could be accounted for in an empirical study. As it happens, the results of the numerous empirical investigations concerning the direct influence of the rate of interest on entrepreneurs' decisions to invest are known to be negative (cf. Andrews, 1938; Sayres, 1940; Ebersole, 1936-39; Brodie and Grey, 1956).
factor of production' employable in increasing proportion to other factors as the rate of interest falls - the basis, as we argued, of the idea of a demand schedule for 'saving' determining the rate of interest in conjunction with the supply schedule of full employment saving. The deficiencies of that conception of capital led us to the conclusion that, contrary to what is often argued, an analysis conducted in 'real' and 'static' terms provides no basis for the belief that investment decisions can, in the long period, adjust to decisions to save.

In this second Part of the paper, the problem will be approached in terms of the 'monetary' analysis of Keynes's General Theory and the subsequent controversy. In section 2.1, we shall use Wicksell's theory of the price level as an example of how traditional theories would link their 'real' analysis of distribution with their analysis of the money rate of interest. We shall then argue, in section 2.2, that Keynes's different conclusions concerning the effects of deficits in aggregate demand are explained by his rejection of the orthodox theory of the interest rate, and not by the assumption of money-wage rigidity. The examination, in section 2.3, of the deficiencies of Keynes's own critique of that theory of interest will then pave the way for a discussion, in section 2.4, of the subsequent attempts to rehabilitate traditional theory. We shall thus finally arrive, in section 2.5, at those questions of 'real' theory to which the differences between the conclusions of Keynes and those of the orthodox economists are ultimately traceable, and we shall conclude the article by referring back to the result of our analysis in Part I.

2.1. An example of the marginalist analysis of the market for loans: Wicksell's monetary theory

While the economic theories prevailing before Keynes's critique assumed a spontaneous tendency to the full employment of productive capacity, they nevertheless had to explain the fact that periods of prosperity alternate with periods of depression, in which there is unemployment and in which production in many sectors falls below productive capacity. The explanation of these phenomena was found in obstacles - not unlike the 'frictions' recognised in other branches of economic theory - which retarded the action of the underlying forces described by the theory, obstacles which were generally attributed to the working of the credit system. The treatment of these problems thus came to be part of a theory of money, separate from the main body of economic theory concerned with distribution and relative prices.

One kind of explanation of the alternation between periods of prosperity and of depression saw its origin in fluctuations of the psychological state of confidence, intensified by the speculative purchasing of commodities financed by bank loans when prices rise, and by the inevitable subsequent sales as soon as a downturn in prices is foreseen. This appears to have been Marshall's position. He saw the sole effective remedy for unemployment due to depression as lying in the greatest possible restriction of 'reckless inflations of credit', which are 'the chief cause of all economic malaise', in that they are followed by liquidations and bankruptcies which shake the 'general state of confidence'. In the subsequent period, marked by lack of confidence, individuals, when having the power to purchase, can choose not to exercise that power; and, in particular, they can choose not to lend capital to new firms. Unemployment results in the industries which produce investment goods; unemployment which then tends to spread to the consumer goods industries as well (Marshall, 1920, VI.13.10; see also Marshall, 1965, VI.3.3, pp. 249-51). Thus, according to Marshall, no real limits to the possibility of employing additional capital in production are involved; the limit consists only in an overestimation of risk, which is bound to disappear as soon as the consequences of the previous wave of optimism have exhausted themselves.

By contrast, an alternative explanation of these phenomena stressed objective factors and, in particular, the discontinuous character of technical progress. This was Wicksell's approach. He wrote: 'The principal and sufficient cause of cyclical fluctuations should rather be sought in the fact that in its very nature technical or commercial advance cannot maintain the same even progress as does, in our days, the increase in needs... but is sometimes precipitate, sometimes delayed' (Wicksell, 1935, p. 211; see also Wicksell, 1907, pp. 223-39), which results, according to Wicksell, in fluctuations in the profitability of investment, to which the structure of interest rates on money loans adjusts only with a lag, causing price variations meanwhile. Here we meet Wicksell's monetary theory, to which we must now proceed. This theory constitutes perhaps the most important pre-Keynesian attempt to ground by means of a systematic analysis of the money loan market (the market in which the rate of interest is actually observed) the marginalist concept of interest as the supply-and-demand determined price of the productive factor 'capital'. Moreover, Wicksell's analysis is akin to that of the General Theory, in that it is focused on the source and the effects of variations in aggregate monetary expenditure: it will thus prove useful as a term of comparison below, when we consider the 'real' or 'monetary' nature of the hypotheses underlying the different conclusions reached by Keynes.

Fundamental to Wicksell's theory is the concept of an interest rate referred to as 'natural', 'normal' or 'real': the rate, that is, at which 'the demand for loan capital and the supply of savings exactly agree' (Wicksell, 1935, p. 193). The 'natural' rate, Wicksell writes, 'more or less corresponds to the expected yield on the newly created capital' or, as he puts it elsewhere, to the return on capital which becomes 'free' in the course of the period considered, and can

19 Savings, the supply of which is referred to by Wicksell in the above passage, should be understood to be the planned gross savings, given by the difference between gross income and consumption under the assumption of full employment of resources with equilibrium relative prices and distribution. (See n. 25 below, for a discussion of alternative interpretations of these equilibrium prices.)
thus be 'invested' in the most profitable physical form. Since the expected return on 'newly created capital' will tend to coincide, under normal conditions, with the return which will be realised, the 'natural' rate of interest is the rate of interest which Wickesell had related, in the real part of his theory, to the data concerning the available quantities of factors, technical knowledge and the tastes of consumers (cf. Wickesell, 1935, pp. 205-6). It follows that the natural rate of interest is liable to vary as a result of changes in any of these data. The explanation of variations in the price level can then be found, Wickesell argues, in the slowness with which the banks adjust their lending rates of interest to variations in the natural rate.

Before proceeding with Wickesell's argument, let us stop to emphasise two aspects of it which are important for us here. The first is the assertion that the market rate of interest can differ from the 'natural' rate for non-negligible periods of time. The second is that the possibility of this is attributed to the existence of the banking system. Wickesell maintains in fact that if money loans were to take place directly, from person to person, their supply would be largely determined by money savings. The forces of demand for, and supply of savings could then act directly on the market for money loans and bring the rate of interest back to the level of the natural rate, as soon as the former began to diverge from the latter. Thus if, for example, there were an increase in the profitability of investment, the increased 'demand for loan capital' would encounter the limit to the supply of loans set by the flow of savings: an increase in the market rate of interest, towards the level of the 'natural' rate, would result. The situation is quite different when there is a developed banking system. Indeed, the volume of bank loans is independent of the flow of money savings. 'By the concentration in their hands of private cash holdings ... [the banks] possess a fund for loans which is always elastic and, on certain assumptions, inexhaustible' (Wickesell, 1935, p. 194). Hence the banks can accommodate any variation in the demand for loans without changing their rates of interest and can thus sever the link between the market rate of interest and the 'natural' rate which would otherwise have operated through demand and supply in the loan market.

Yet if this direct link between the two rates is broken, Wickesell continues, another, far less rigid link will nevertheless continue to hold good and will act via the price level. Let us in fact consider an initial situation of real and monetary equilibrium, in which there occurs an increase in the profitability of investment, and suppose that the banks meet the increased demand for loans by an expansion of credit, leaving the rate of interest unchanged. As the loans come to be used for the purchase of means of production, the flow of aggregate money expenditure will increase: to an initially unchanged consumption expenditure there will be added the increased investment expenditure. This increased aggregate expenditure, meeting a virtually unchanged volume of output, will lead to an increase in money prices: the increase will at first be in the prices of investment goods, but then, when the increased money income thus generated permits increases in consumption expenditure, the prices of consumer goods will also increase – and this latter increase may be contributed to by transfers of resources from the production of consumer goods to that of investment goods (see Wickesell, 1935, p. 194). If we assume that the money rates of payment to primary factors tend to increase in the same proportion as prices, the profitability of investments will continue to exceed the market rate of interest and, as long as this condition holds good, the inflationary process will continue (ibid., pp. 195-7). An analogous process will take place, but in the opposite direction, when the 'natural' rate of interest falls and the banks keep the market rate unchanged (ibid., p. 200). But, Wickesell concludes, it will be these very cumulative processes of inflation or deflation which will compel the banks eventually to raise, or lower, the market rate of interest towards its 'natural' level (ibid., p. 201), the only level at which there will be price stability.

The theory briefly set out above brings to light the (often implicit) grounds on which the marginalist theorists maintained that the separation between savings decisions and investment decisions – or the influence of monetary factors in the loan market – could not endanger, other than temporarily, the claimed tendency to the full employment of the factors of production. At the

23 Wickesell's concept of 'free' capital merits closer consideration because it highlights some difficulties which are implicit in the traditional concepts of the demand for and the supply of saving. At the time of Geldzins und Guterprise (1898), Wickesell assumed that money lent to entrepreneurs for investment would, in the final analysis, be spent solely on consumption goods, to be 'advanced' as wages and rents to the 'original' factors (see, e.g., Wickesell, 1965, pp. 102-3); such goods would have constituted a 'free' or 'liquid' capital, which is to be distinguished from 'invested' capital, represented by capital goods. Yet this concept of investment expenditure is invalid, unless one supposes an economy in which the production of consumption goods takes place in annual cycles and starts each year with land and labour unassisted by any capital goods. Under any other assumption, investment expenditure will be largely upon capital goods. Then the consumption goods which the saver has 'forgone' are not produced at all when the investment process develops smoothly; the role of such 'forgoing' being only that of freeing for the production of capital goods the resources which would otherwise have been required for the production of the 'forgone' consumption goods. In this case, as Wickesell recognised in the Lectures (Wickesell, 1935, p. 192), 'free' capital does not take any physical form at all; and the concept merely serves to mark the fact that, in so far as the decision in question were correctly foreseen in the past, the relevant sums of money may be spent on capital goods of any type whatever.

The qualification concerning the necessity that the current saving and investment decisions were correctly foreseen in the past is important: demand for, and supply of saving involve the decisions of three groups of people and not just of two, as might appear at first sight. The idea of a 'supply of savings' presupposes the coincidence of the saving and the decisions of producers concerning the division of aggregate supply between consumption and capital goods. Similarly, the idea of a demand for saving or investment presupposes that the producers of capital goods correctly foresee the physical composition of the investment demand.

24 To the extent that monetary expansion transfers resources from the production of consumption goods to the production of investment goods, real accumulation will be higher than it would have been at the 'natural' rate. To this extent, the 'natural' rate itself would tend to fall and approach the market rate. Wickesell admits this effect, but considers it to be of secondary importance (evidently because of his implicit assumption of a highly elastic demand for capital) (cf. Wickesell, 1935 pp. 198-9).
basis of their argument there lay the postulate of the elasticity of the demand for capital with respect to the rate of interest. 25 This elasticity, it was thought, would make it possible for the rate of interest to adjust planned investment to planned savings through the play of demand and supply in the market for money loans. But if this first demand-and-supply mechanism were seriously hampered by monetary factors, that same elasticity would ensure that changes in the rate of interest would suffice to re-establish equilibrium in the face of variations of aggregate expenditure due to inequality between planned savings and investment. It is Wickell’s merit to provide a systematic and rigorous version of this line of thought; even if, in doing so, he shows that the link between saving and investment decisions must often be the indirect one. 26

It is not surprising, therefore, that Wickell did not find, in his analysis of the loan market, any factors which might bring into question the conclusions

25 In Geldäusser und Güterpreise Wickell seems to explain the increase in the demand for ‘loan capital’ that resulted from a decrease in the rate of interest in terms of the incentive that the growing difference between the rate of profits obtainable in production (equal to the ‘natural’ rate of interest) and the market rate of interest gives entrepreneurs to expand the scale of aggregate output (cf. Wickell, 1965, pp. 89-90, and Wickell, 1935, pp. 195-6).

This explanation brings us to the question hinted at above (n. 22) concerning the relative prices and distribution underlying the schedules of the demand for and supply of saving in traditional theory. Two alternative assumptions are conceivable: (a) that relative prices and factor remunerations are those ruling in the given situation and do not change as we move along the schedules; (b) that wages, the rents of natural resources and the relative product prices are those which would obtain in the equilibrium situation corresponding to the rate of interest assumed for the loan market (see above, n. 16). According to assumption (a), used in Geldäusser, the rate of profits obtainable in production being given, independently of the assumed rate of interest on loans, the search for maximum profits would lead, not only to changes in production methods adopted (factor proportions), but also to changes in the scale of every line of production. This explanation of the demand for investible funds does not, however, appear to be acceptable.

Since the traditional theory assumes that labour and natural resources always tend to be fully utilized, the tendency to increase the scale of production in the aggregate could only lead to changes in the real remuneration of labour and natural resources. The investment planned to change the scale of production would thus be countermanded when, as it began to be carried out, distribution and relative prices adapt themselves to the rate of interest ruling in the loan market. The demand for investible funds will then in fact turn out to be determined exclusively by the tendency to change the ratio of capital to ‘original’ factors, i.e. according to assumption (b), as was assumed in the argument of Part I of these Notes (cf. pp. 35-6). (Similar considerations hold for the supply of savings, which will also be influenced by changes in distribution and relative prices.)

In the Lectures Wickell seems to take account of this and to modify somewhat his earlier position (cf., e.g., the reference in Wickell, 1935, pp. 195, to ‘increasing roundaboutness which is undoubtedly invoked by a fall in interest rates’). Wickell’s reluctance to adopt this second point of view exclusively is due to the difficulty of admitting a rapid adjustment of distribution and relative prices to the rate of interest on loans or, alternatively, of assuming correct entrepreneurs’ forecasts of such effects. But since assumption (a) is even less acceptable, it would seem that this difficulty is inseparable from the idea of supply and demand schedules for savings.

26 Similar suggestions were frequent in other marginalist writers. Consider, e.g., Marshall’s argument in Money, Credit and Commerce that an influx of precious metals would initially produce a fall in the rates of interest, which would then rise again as a result of the rise in prices that that influx had brought about (Marshall, 1965, VI.2.6, p. 255).

of the ‘real’ theory on the tendency to full employment of factors: variations of monetary expenditure are seen to have effects on the level of prices, but not on the levels of production and of factor employment. The rationale for this lay in two complementary elements. On the one hand, there was the idea that on the appearance of unemployment of the primary factors, competition would lead to a decrease in their monetary rates of remuneration; this made plausible the hypothesis that prices would fall in step with monetary expenditure, leaving the volume of output virtually unchanged. On the other hand, this hypothesis did not entail admitting an absurd process of unending deflation or inflation of prices: the elasticity of demand for investible funds in fact ensured the existence of a ‘natural’ rate of interest to which the banks would be able, and eventually compelled, to bring back the money rate of interest. It was thus natural for Wickell to suppose that any under-utilisation of productive equipment and primary factors could only be temporary and could therefore be neglected in an analysis of value and distribution conducted at the level of general principles. 27

2.2. Keynes’s theory and the rigidity of money wages

What we must now consider is why Keynes, although starting from premises not unlike those of Wickell, arrives at radically different conclusions.

The picture which Keynes’s General Theory draws is well known. As in Wickell, the system of interest rates is proximately determined by monetary factors. Keynes approaches the problem of the rate of interest from the angle of the demand for and supply of the stock of money. The demand for money, or ‘liquidity preference’, is explained in terms not only of the two traditional ‘transactions’ and ‘precautionary’ motives, but also in terms of the speculative motive, which expresses the preference for money, as a means of holding wealth, of those who expect falls in the value of bonds (= increases in the rate of interest). According to Keynes, the demand for money due to this third motive must be elastic with respect to the rate of interest, since the lower is that rate, the greater is the risk that it will rise, and the smaller is the compensation for such risk provided by the interest rate (Keynes, 1936, pp. 201-2). The rate of interest is thus the price which will bring into equality, not the demand for and supply of saving, but rather the desire to hold wealth in the form of money and the quantity of money made available by the monetary authorities. It is therefore determined once ‘liquidity preference’ and the quantity of money are known. Planned investment, on the other hand, depends on the rate of interest in the manner shown by the ‘marginal efficiency of capital schedule’. Once the rate of interest is determined, there-

27 The possibility is mentioned in the Lectures that increases in money demand might be satisfied, in part, by increases in output made possible by the presence of previously unemployed productive resources. Such a possibility is judged to be of secondary importance and is ignored in the rest of Wickell’s discussion (Wickell, 1935, p. 195).
planned investment relative to planned saving is followed by decreases in total expenditure measured in wage-units: he assumes, that is, that money wages do not fall or, more exactly, do not fall in the same proportion as money expenditure has fallen. Given this assumption, there must be a shrinking of output, since the entrepreneurs will not continue to produce at below normal profits. It must now be asked to what extent Keynes's thesis would remain valid were we to admit, with Wicksett, that competition amongst unemployed workers would give rise to a continuous fall in the money wage. Must we then conclude that under-employment ‘equilibria’ exist only during the time required for a sufficient fall in money wages?

As is well known, Keynes denied that the novelty of his conclusions turned on the hypothesis of money wage rigidity, and chapter 19 of the General Theory is devoted to this question. The argument develops in two stages. Keynes assumes at first that the fall in the money wage rate will cause a shift in neither the consumption function nor the marginal efficiency of capital schedule. He also assumes that it will not affect the rate of interest. In this case, the fall in wages could not lead to permanent increases of employment and real income (Keynes, 1936, pp. 261-2). Thus, Keynes concludes, the fall in wages could affect employment only through its effects on the propensity to consume, on the marginal efficiency of capital schedule, and on the rate of interest.

Keynes then proceeds to the second stage of his argument and considers the effects of a fall in wages on the consumption function and on the marginal efficiency of capital schedule. He concludes that, in a closed economy, these effects will be negative, rather than positive, in their implications for employment. He therefore turns to consider the effects on the rate of interest, remarking that it is to these effects alone that reference can be made by those who claim that wage flexibility will lead to full employment. Yet if the available quantity of money contracts in step with money income, ‘there is ... nothing to hope in this direction’. If the quantity of money remains approximately constant, however, Keynes continues, there will be effects on the rate of interest analogous to those which the monetary authorities can achieve by purchasing bonds on the ‘open market’. In either case the quantity of money increases relative to money income: a greater quantity of money thus becomes available to meet the demand for money deriving from the ‘speculative motive’ and, given the speculative demand schedule, the interest rate must fall. It follows, says Keynes, that, leaving aside the disadvantages specific to this particular method of increasing the relative supply of money, decreases in money wages encounter limits to their effect on the rate of interest analogous to those specific to open market operations. Just as open market operations can have but a limited influence on long-term rates of interest when the increase in the quantity of money is moderate, whereas they can have unfavourable effects on the state of confidence when the increase is large, so a moderate fall in money wage rates will prove insufficient, whereas a large fall could shatter the state of confidence. Keynes
thus concludes by asserting firmly that: 'There is, therefore, no ground for the belief that a flexible wage policy is capable of maintaining a state of continuous full employment — any more than for the belief that an open-market monetary policy is capable, unaided, of achieving this result' (Keynes, 1936, p. 267, but see also p. 27 and our note 32 below).

We shall have reason to return to this argument of Keynes later on and to discuss its limitations. Here we need only note that the hypothesis of money wage rigidity does not suffice to explain the difference between Keynes's conclusions and those of the traditional economists; the flexibility of prices and wages would lead to the full employment of factors only if the resulting decrease in the rate of interest could affect planned investment so as to make it equal to full employment savings. Keynes denied that the rate of interest could play that equilibrating role and it is here, in the theory of the rate of interest, that he diverges from Wicksell and the other 'orthodox' economists.

Thus two results begin to emerge from this preliminary discussion of Keynes's analysis.

The first result is to confirm what we maintained in Part I of these Notes (see pp. 31-2): the source of the difference between Keynes and the orthodox economists is to be sought in the theory of the rate of interest.

The second result concerns the precise nature of this difference in the theory of the rate of interest. Keynes's conclusions rest, in fact, not so much on the particular theory of the rate of interest which he put forward, as on his rejection of the traditional theory, which determined the rate of interest by the demand for and the supply of savings. An interesting expression of this negative role which the theory of the rate of interest plays in the General Theory may perhaps be found in a seldom noted passage written by Keynes one year after that book. Referring to his own theory and to its genesis, he says:

> the initial novelty lies in my maintaining that it is not the rate of interest, but the level of incomes which ensures equality between saving and investment.
> The arguments which lead up to this initial conclusion are independent of my subsequent theory of the rate of interest, and in fact I reached it before I had reached the latter theory. But the result of it was to leave the rate of interest in the air. If the rate of interest is not determined by saving and investment in the same way in which price is determined by supply and demand, how is it determined? ... It was only when [attempts in other directions failed] ... that I hit on what I now think to be the true explanation (Keynes, 1937, p. 250).

It is then in the critique of the traditional theory of interest, rather than in the hypothesis of money wage rigidity, that the roots of Keynes's conclusions are to be sought. It is to that critique, contained in chapter 14 of the General Theory, that we must now direct our attention. Indeed, if the critique were well founded, the hypothesis of money wage rigidity would appear to be a consequence, and not a premise of the thesis that there exists no tendency to

the full employment of factors. To assume wage flexibility, in the absence of a rate of interest capable of adjusting planned investment to full employment saving, would compel us to allow for an absurd process of unending deflation of prices and wages when investment is less than full employment savings.30

2.3. Keynes's critique of the traditional theory of interest

Keynes's critique of the traditional theory of interest appears to contain two strands. On the one hand, there is the charge that the theory is indeterminate. To each level of utilisation of productive capacity there corresponds a different real income and hence a different supply of savings schedule: given the marginal efficiency of capital schedule, there are therefore not one but many rates of interest at which planned investment and planned saving are equal — one for each level of real income (Keynes, 1936, pp. 179-82). On the other hand, there is the thesis that the rate of interest constitutes not the price of savings but, rather, the price needed to induce individuals to hold wealth in forms other than money.

The first criticism does not seem to be well founded. Let us begin by accepting, in accord with traditional theory, the following two propositions: (a) that at each level of real income the action, in the loan market, of the demand for savings and the supply forthcoming at that real income, creates a tendency for the rate of interest to move towards the level at which the two schedules intersect;31 (b) that the money wage is flexible in the presence of unemployment.

We now assume a level of investment insufficient to ensure the full employment of labour; by assumption (b) the money wage will fall. As Keynes admits in his discussion of falls in money wages, one can now suppose that the entrepreneurs react initially by increasing output in the expectation of a demand for their products which is unchanged in money terms. Under our present hypothesis, this expectation could not be entirely disappointed, since, the supply of 'real' savings being shifted to the right, there will, by assumption (a), be a tendency for the rate of interest to fall; the consequent increase in investment will make possible the maintenance, at least in part, of the initial increase in employment. Since, by assumption (b), there will be decreases in the money wage as long as there is unemployment, this process will eventually lead to the achievement of full employment. As a result the full-employment supply schedule of savings is the only supply of savings to which the theory under examination need refer in the determination of the equilibrium rate of interest: the dependence of the supply of savings on the level of employment does not warrant the charge of

30 Keynes's conclusions concerning the effects of money wage decreases on the propensity to consume have been questioned in terms of the so-called 'Pigou effect': the significance of the latter for our argument will be discussed below, note 39.
31 If this assumption is not accepted, the critique of the traditional theory will lie in the reasons for which the assumption is rejected and not in any indeterminacy of the theory.
indeterminacy laid by Keynes. Analogous conclusions would be reached if
traditional theory were to maintain, with Wickess, that the presence of the
banking system makes assumption (a) unacceptable, but were to admit, at
the same time, the possibility, and eventually the necessity, that the banks
should bring the rate of interest to its 'natural' level.

We may therefore confine our attention to the second strand of Keynes's
criticism of the received theory of interest. This may be summarised by
saying that the traditional theory of interest ignored the effects deriving from the
role of money as a store of value. When this role is given due weight, 
Keynes states, one must recognise that the aggregate demand for money
depends on the rate of interest, as well as on the total money volume of
transactions. For a given money value of output, the demand for money will
be greater the lower is the rate of interest: the latter will then have the role
of bringing about equality between the quantity of money made available by
the monetary authorities and the demand for money, not that of equating the
demand for and the supply of saving (see, for example, Keynes, 1936, p. 167).

Keynes therefore confines himself, in this second criticism, to
counterposing his own theory of interest to the traditional one, and the force
of his argument is thus merely that of the theory which he puts forward. The
idea that the demand for money depends on the rate of interest - which is
quite in accord with marginalist principles when it is presented in terms of
equality, at the margin, between the sacrifice of liquidity and the payment
therefore - has been generally accepted in subsequent literature. The same
has not occurred for the critique of the traditional theory of interest which
Keynes wished to base on that idea. Indeed, we shall see in the next section
how it has been argued that the rate of interest can equalise both the demand
for and supply of the stock of money and the demand for and supply of savings.

These attempts to reinstate the traditional analysis were undoubtedly
encouraged by the feeling that Keynes's theory of interest would not conflict with orthodox theory properly interpreted. As exemplified above by

Keynes himself appears at times to imply that variations in money wages could justify the
traditional theory of interest when this refers to a full employment income for defining the
supply schedule of saving. Thus he writes, 'the position could only be saved by some
complicated assumption providing for an automatic change in the wage-unit of an amount just
sufficient in its effect on liquidity-preference to establish a rate of interest which would just offset
the supposed shift of the marginal efficiency of capital, so as to leave output at the same level as
before' (Keynes, 1936, pp. 179-80). But in introducing the idea of 'liquidity preference', Keynes
here forces his own theory on the traditional one. More relevant to the latter would seem to be
another passage: 'If, however, there is a negligible demand for cash from the speculative-motive
except for a short transitional interval, an increase in the quantity of money will have to lower
the rate of interest almost forthwith, in whatever degree is necessary to raise employment and
the wage-unit sufficiently to cause the additional cash to be absorbed by the transactions-motive and
the precautionary-motive' (ibid., p. 171). Keynes is here referring to increases in the
quantity of money, but the same conclusions hold for reductions in the money wage, given the
quantity of money; it is then difficult to see how this position can be reconciled with the
assertion that the traditional theory is indeterminate.

reference to Wickess, the orthodox theory of interest was only meant to refer
to long-run tendencies, destined to assert themselves against the short-term
obstacles raised by a number of other factors.

When examined from this standpoint, Keynes's theory of interest appears
to be unsatisfactory. The quantity of money demanded on account of the
speculative motive depends, Keynes says, not on the absolute level of the rate
of interest but, rather, on the extent to which that rate lies below the rates
which the various holders of wealth expect in the future (see ibid., p. 201).

The position of the speculative demand for money schedule, and hence the
rate of interest, thus come to depend on expectations about the future course of
the latter. However, in the absence of their utulcer explanation, these
expectations introduce a serious element of indeterminacy into the theory.

Thus if it were assumed that expected rates of interest tend, albeit with a
certain lag, to move parallel to the actual rate of interest, the principal reason
advanced by Keynes for the interest-elasticity of the speculative demand for
money - the growing divergence between expected rates and the current rate
when the latter falls - would lapse. This point is reinforced when it is noted
that the supply of money which is to satisfy the speculative demand can only
change due to either changes in the money value of aggregate output or the
policy of the monetary authorities: and it is difficult to imagine, in either case,
that there will not be some effect on expected interest rates. Keynes does in
fact recognise this possible instability of the expectations on which the
market rate of interest would depend and he takes it into account by
admitting the possibility of shifts in the speculative demand for money
schedule in the face of, for example, a central bank policy of monetary
expansion (see, for example, ibid., pp. 197-8). Yet it is clear that, in so far as
it is probable that speculative demand shifts as the supply of money changes,
Keynes's analysis loses much of its force: like any other analysis in terms of
demand and supply, it presupposes a sufficient mutual independence of the
two schedules.

Keynes's theory appears therefore to rest on the assumption of a
considerable degree of stability of the expectations concerning the rate of
interest: a stability which can only be based on stable views, on the part of
the owners of wealth, as to what constitutes a 'normal' level of the interest
rate. This seems in fact to be Keynes's rationale for the 'speculative' demand
for money. Yet when it is interpreted in this way, the inadequacy of the
liquidity preference theory as a long-period analysis of the rate of interest
becomes even clearer; the average value, over time, of the rate of interest on
long-term loans proves to be largely determined by views about the 'normal'
rate of interest, views which the theory does not explain (cf. ibid., p. 201).

This deficiency of Keynes's theory was, for example, the starting point for
a more direct defence of the traditional theory than that which we shall
consider in the next section; the prevailing views about the normal level of
the interest rate were explained by some authors in terms of a substantially
correct estimation of the rate of interest needed to adjust investment to the
dominant concern of these authors with long-period tendencies allowed them to ignore the negative psychological effects of falls in wages and prices, or increases in the quantity of money. That same concern explains, in part, a subtle but important shift in the interpretation of the 'speculative' demand for money. This demand is now made to depend not so much on views of what constitutes a normal level of the rate of interest, but rather on the convenience and security deriving from the holding of one's wealth in the form of money; the security in question is relative to those risks of changes in the value of bonds, entirely due to uncertainty, which would exist even when a rise in the rate of interest appeared no more probable than an equal fall. By this change in the interpretation of liquidity preference, a sufficient stability is attributed to the demand for money without having recourse to views about a 'normal' rate of interest, which are not explained within the theory. Moreover, one thereby avoids consideration of the possibility of a high elasticity of the demand for money, with respect to the rate of interest, at rates above the minimum level to which we shall refer below; a possibility to which Keynes had attached considerable importance and which can be explained only in terms of sufficiently unambiguously views of wealth holders about what constitutes the normal level of the interest rate.

Given these premises, it is no difficult to conclude that, if unemployment of labour leads to the continuous fall of money wages, one will eventually reach - subject to the exception to be considered shortly - a state of equilibrium. In this equilibrium, the ratio between the money value of output and the available quantity of money permits a level of the interest rate at which investment is equal to full employment savings.

The significance of this argument does not depend on the assumption of a high flexibility of money wages, an assumption generally held to be of doubtful applicability. If the flexibility of money wages would permit the achievement of full employment in the way just described, then the same
result can be obtained with an expansionary monetary policy. As Modigliani puts it, 'It is the fact that money wages are too high relative to the quantity of money that explains why it is unprofitable to expand employment to the "full employment" level'; and the remedy can take the form of either a decrease in money wages or an increase in the quantity of money, money wages being constant (cf. Modigliani, 1944a, p. 225, and Hicks, 1937a, p. 465 and pp. 473-5).

We referred above to an exception to these conclusions. The authors in question in fact admit only one situation in which money wage flexibility, or an expansionary monetary policy, cannot lead the economy back to full employment. This is the so-called 'Keynesian case': a situation in which the rate of interest required to ensure full employment is negative or, at least, lower than that rate of interest which, in the view of the majority of wealth holders, would be barely sufficient to compensate for the risk and inconvenience of holding any part of their wealth in any form other than money. At this level of the interest rate the elasticity of the demand for money would tend to become infinite (cf. Modigliani, 1944a, p. 222n; Hicks, 1937a, pp. 460-2), and decreases in money wages or increases in the quantity of money could not lead to any further fall in the rate of interest. However, these authors attribute limited importance to this possibility — and here we find, yet again, the basic marginalist idea of a demand for capital which is, under normal conditions, highly elastic with respect to the rate of interest. The inelasticity and position of the schedule of the marginal efficiency of capital which would be needed to explain a full-employment rate of interest lying below that minimum level are held to be possible only in deep depressions, when they would be due to the conditions of uncertainty and over-estimation of risks characteristic of such situations. These authors in fact maintain, agreeing here with Keynes, that a situation in which the preceding accumulation of capital has reduced the actual yield of capital almost to zero has never yet occurred (Modigliani, 1944a, p. 222n; Keynes, 1936, p. 207).

The relevance of the 'Keynesian case' is thus confined to the analysis of short-period phenomena and the same is true for the importance of the psychological factors to which Keynes had referred, in chapter 19 of the General Theory, in order to deny the possibility of reaching full employment through falls in money wages or increases in the quantity of money. In the former as in the latter context, the psychological state of lack of confidence characteristic of depressions would, as long as it persisted, constitute the obstacle which prevents a return to the full employment of factors, following an argument not unlike that which had been put forward by Marshall long before.45

2.5. Novel and traditional elements in Keynes's theory: the marginal efficiency of capital

The line of argument considered in the previous section thus leads to a substantial rehabilitation of traditional theory for the long period and, in particular, for accumulation. The scheme of the long run inter-relation between 'real' and monetary forces which that argument presents does not differ essentially from that which Wickens had presented earlier. In the former, as in the latter, it is admitted that monetary factors can, temporarily, keep the market rate of interest at a level other than the full employment rate — equivalent to the 'natural' rate in Wickens's theory. In both schemata, however, the full employment — or 'natural' — rate of interest continues to be the equilibrium one towards which the market rate of interest tends to gravitate. The divergence between the two rates would cause inflationary or deflationary tendencies, whether the latter consist principally of falls in prices and wages or mainly of unemployment of labour; these tendencies would then induce the monetary authorities, who are credited, in both arguments, with proximate control over the rate of interest, to adjust the ruling rate to its 'natural', or full employment, level.46

When compared with these similarities in the conclusions, the concepts of liquidity preference and of the consumption function — the specifically Keynesian elements of the above rehabilitations of the traditional theory — are of relatively minor importance. These elements are accorded a dominant role only for the analysis of the short period and the trade cycle. In this more limited context, the effects of the rate of interest on the demand for money terms. The propensity to save of wealth-holders will consequently fall until the full employment level of savings equals the level of investment forthcoming in the situation under consideration. (Cf. Pigou, 1947, pp. 249-51; Haberler, 1969, pp. 483-9; Fatkin, 1948, pp. 258-70.) This argument does not support the traditional doctrine that the level of investment is determined by the community's propensity to save and is thus of limited interest to us here. One remark concerning it may however be made. It is reasonable to suppose that the greater part of saving comes from high income recipients and that this group will also hold a large fraction of both the public debt and idle money balances. Thus what the 'Pigou Effect' implies is an increase in wealth of high income recipients (whose incomes will also increase in real terms at the expense of tax payers so long as the state pays a constant rate of interest on its debt) such as to lead them to reduce their savings by the required amount. Now — even admitting that the redistribution of wealth and income against private debtors and the redistribution of income through the government's interest payments do not impede the reduction in the propensity to save — it seems hard not to conclude that long before the community comes to accept such a redistribution of wealth, other methods of solving the problem of unemployment will have become inevitable, which will be of more direct and less uncertain effect.

45 A different attempt to rehabilitate the principle of the tendency to full employment is that based on the so-called 'Pigou Effect'. When money wages and prices fall, the aggregate net credit of the private sector of the economy — equal to the total net debt of the government and the central bank (banknotes and government stock) in a closed economy — will increase in real
highlight an obstacle capable of retarding the action of the 'real forces' on the rate of interest, particularly in the case of deflation. The consumption function then allows a theoretical treatment of the effects on real income and employment of decreases in money expenditure in the presence of rigid money wages. Thus, in Hicks's words, Keynes's theory appears to be 'the Economics of Depression'; and, in this perspective, Keynes's specific contribution consisted of laying 'enormous emphasis' on the qualifications to traditional theory, the need for which had already been admitted by Marshall or by his successors (Hicks, 1937, pp. 472 and 465).

We have clearly moved far from the meaning which Keynes himself attributed to his theory when he contrasted it with the traditional theory, which he held to be applicable only in the 'special case' of full employment. And what is most remarkable is that this reversal of meanings is achieved without rejecting the basic assumptions of the General Theory, but on the contrary, by moving within its conceptual framework. This possibility of attributing contrasting meanings to Keynes's theory would therefore seem to arise from within that theory itself, and it will be of interest, at this point in our argument, to seek to identify its source.

To note that the theory had been formulated by Keynes on the basis of short-period assumptions, and thus left open problems concerning long-period tendencies, does not appear to go to the root of the matter. Indeed, it remains to be explained why Keynes restricted to the short period an argument whose implications would, he thought, reach far beyond the theory of cyclical phenomena. Above all, we have to explain why the long-period implications which Keynes thought he could deduce have proved to be open to contradiction within his own theoretical framework.

It seems that the root of this ambivalence must rather be sought in the composite character of Keynes's theory. The General Theory might be said to contain two fundamentally heterogeneous strands of thought, the one superimposed on the other. A vision of the mode of operation of the economic system, which is in radical conflict with that of the dominant theory, is imposed, as if by force, upon a conceptual basis which is to a large extent still the traditional one, thus giving rise to an inherently unstable compromise. The novel part of Keynes's theory centres on the thesis that it is principally variations in the level of aggregate output that equilibrate investment and saving in a capitalist economy, a thesis which is suggested directly by an unprejudiced observation of the facts. But this thesis was in conflict with the generally accepted theory of distribution on both the latter's main flanks: that of the labour market — where Keynes had to deny that wages would be determined by the equilibrium between the demand for and supply of labour — and that of the capital market — where Keynes had similarly to deny that the rate of interest would be determined by the equilibrium between the demand for and supply of savings. Thus, in order to develop his initial idea and get it accepted, Keynes had to work out a critique of the traditional theory of distribution and it is in the way in which he conducted that critique that the compromise referred to above finds its origin.

As was seen in Part I of these Notes, one can distinguish two successive logical stages in the traditional analysis of distribution (cf. p. 39 above). In the first, from the marginalist premises concerning production and consumption one derives the idea that, given the quantities employed of all factors but one, the quantity employed of this latter factor increases as its real rate of remuneration falls. In the next step, it is maintained that, as a result of a competition both amongst the entrepreneurs and amongst the owners of factors, there will be a tendency towards rates of remuneration at which the quantity employed will equal the quantity supplied for each factor. Now, in his critique, Keynes accepts the first stage of the argument: in this way he inherits the traditional part of his theory, which is epitomised by the two schedules of the marginal efficiency of capital and of the marginal product of labour. His critique has then to turn exclusively on the second stage of the argument. And at the second stage — with the conclusions from the first stage having already been admitted — the capacity of traditional theory to resist attack proved to be greater than Keynes had thought.

The traditional strand of Keynes's thought does not, of course, merely represent a remnant of received modes of thought which can readily be separated from the remainder of his theory, leaving the latter unaffected. Indeed, it is the schedules of the marginal product of labour and of the marginal efficiency of capital which determine the level of real wages and the volume of investment within the system. One may perhaps wonder how acceptable these determinations are and, above all, how consistent they are with the other parts of Keynes's theory, as soon as problems which are not strictly confined to the short period have to be confronted. The fact

4 In Keynes's theory the money rate of interest is made to depend on factors which are largely independent of those affecting the real wage. While this may be admissible in a short-period analysis, in which the distributive variables may be said to diverge from their long-period levels, the same could not be admitted for these latter levels without contradicting the unique, inverse relation which must obtain in the long period between the real wage and the rate of profits (and hence the average long-period rate of interest) (cf., e.g., Sraffa, 1960, section 49). Doubts about Keynes's determination of the wage are strengthened when one considers that the assumption of decreasing returns on which it is based may be questioned as soon as we admit: (a) that the degree of utilisation of the existing productive equipment will generally vary with the quantity of labour employed; and (b) that, in the short period, the quantity employed of some types of labour is constant, or varies less than in proportion to the quantity of output. But if the returns to labour were constant or increasing, up to or near full utilisation of existing equipment, then a real wage equal to the marginal product of labour would imply that gross profits remain constant or fall as the level of activity increases, which is clearly contrary to experience. It will also be clear that this same determination of the wage is of no relevance when we leave a strict short-period analysis and must therefore first explain why the productive equipment is what it is rather than some other.

Keynes's use of the marginal efficiency of capital also presents difficulties. In particular, it is

4 For the long-period consequences that Keynes drew from his theory, consider Keynes (1936), pp. 372-3, see also the passage quoted in n. 49 below, as well as, more generally, the first two sections of ch. 24. of the General Theory.

4 In this connection see the passage from the General Theory quoted on p. 50 above.
remains, nevertheless, that it is thanks to this particular conjunction of traditional elements and short-period assumptions that Keynes is able to develop, to some extent, the novel strand of his thought, without having simultaneously to face the fundamental problems of value and distribution.

However, the price which Keynes has to pay for the traditional strand in his thought becomes clear with respect to the schedule of the marginal efficiency of capital. As was shown in section 2.2, the conflict with traditional theory over the tendency to an equilibrium between demand and supply in the labour market is, in effect, reducible to that over the determination of the rate of interest. The critique of the traditional theory of interest becomes then the key to an acceptance of Keynes's arguments — and the concept of the marginal efficiency of capital proves to be the Achilles' heel of that very critique. Keynes sees the rate of interest as determined by monetary factors: but, as Wicksell's earlier analysis had shown, the idea of an investment demand schedule constitutes an obstacle which a monetary theory of interest cannot easily overcome. Indeed, admitting an elastic investment demand schedule leads to maintaining, on the one hand, the existence of a full-employment level of the rate of interest and, on the other, the presence of inflation, or deflation and unemployment, when the actual rate of interest is not the full employment one; the idea that the market rate of interest tends to gravitate towards its full employment level then acquires plausibility.

It thus seems that the origin of the contrasting meanings attributed to Keynes's theory is to be sought in the doubting compatibility, from the standpoint of an analysis of long-period tendencies, between the concept of the marginal efficiency of capital and the argument that the level of output plays the leading role in equilibrating planned savings and planned investment. Once the former idea is accepted, it is difficult not to confine the importance of the latter argument to the explanation of the trade cycle and other short-period phenomena. On the other hand, the different conclusions to which Keynes was pointing can be sustained in so far as investment is assumed to be insensitive to the rate of interest, even in the long period. But this assumption is in sharp conflict with the presuppositions of the traditional theory of distribution and cannot find a firm foundation until the critique of that theory has undermined those presuppositions.

If this is so, the conflict between the traditional thesis and that of Keynes, concerning the dependence of investment on the propensity to save, cannot be resolved solely on the terrain of monetary theory, which Keynes chose for his critique. Rather, this conflict leads us back to the questions of 'real' theory discussed in Part I of these Notes. And to the conclusions which were reached there we must now return.

Conclusions

Our argument in Part II has thus brought us to an alternative, the central element of which is the acceptance or the rejection of the traditional representation of capital as a productive factor, employable in the economy in quantities which increase relative to the quantities of the other factors as the rate of interest falls. If one accepts this representation and, consequently, the traditional thesis with respect to the dependence of investment on the rate of interest, it becomes difficult to reject the traditional doctrine concerning the long-period relation between the propensity to save and the level of investment; unless, that is, one assumes either capital saturation or a long-period deflationary policy on the part of the monetary authorities. By contrast, if the validity of that representation of the productive process is found wanting, the doctrine that the community's propensity to save determined the level of investment is thereby deprived of its foundation.

Now, the argument presented in Part I leads us to maintain that the second possibility is that which permits a better understanding of the facts and we may conclude that, in a long-period analysis no less than in a short-period one, the level of investment should be considered as independent of the propensity to save.

It is then necessary to distinguish between two possible situations. The first is that in which the incentive for private investment remains, for long
periods of time, at such a level that aggregate demand presses on the limits of available productive capacity, in almost all major sectors of the economy. There will then tend to be a price inflation, one effect of which could be that of reducing consumption, thus making room for the high level of investment. In such conditions, a fall, or a reduced increase, in consumption—especially of those goods which draw on productive equipment which could be used for investment goods—may have the effect of reconciling the high level of investment with greater price stability.

The more usual situation would, however, be a second one, in which private investment does not reach the limit set by available productive capacity. In this case a fall, or a reduced increase, in consumption could not have any direct effect in increasing investment, and the indirect effects could well be negative through the contraction of demand for consumer goods and the consequently reduced incentive to invest.

The above conclusions, like any adoption for long-period analysis of the Keynesian thesis concerning the relationship between saving and investment, inevitably implies a rejection of the traditional theory of production and distribution. It thus re-opens the problem of the long-period determination of both the volume of the social product and its distribution between profits and wages. A treatment of these problems is beyond the scope of these Notes, but before concluding we may indicate a few points which directly follow from what we have said so far.

With respect to the long-period determination of the level of social product and labour employment we may return to a question we raised in section 1.1. We there assumed that the productive equipment in the economy was sufficient to employ the entire supply of labour. As will be remembered, this was done in order to follow the Keynesian controversy without having to take care of the dominant explanation of 'structural unemployment' in terms of rigid real wages.

We might now note that rigid real wages, entailing as they generally will, rigid money wages, could only have strengthened any negative conclusions concerning the long-period dependence of investment on the propensity to save; monetary policy alone would have to be relied on for the necessary adjustments in the interest rate. But when the ground for rejecting the idea of an aggregate demand tending to adjust to productive capacity is that advanced in these Notes, the possibility of 'structural' unemployment emerges quite independently of any rigidity of real wages. The critique of the concept of a demand for capital (investible resources) which is elastic with respect to the rate of interest is, in fact, at one and the same time a critique of the 'twin' concept of a demand for labour which is elastic with respect to the real wage rate (cf. p. 41 above). If that critique is well founded, no absorption of 'structural' unemployment could be hoped for from lower real wages and any consequent changes in the physical form of the given 'capital endowment'. This also implies that real wages cannot be relied on to ensure that employment possibilities will increase over time with the supply of labour. The factors capable of keeping long-period unemployment within socially tolerable limits are then to be sought not in any spontaneous tendency of the demand for labour to adapt to an autonomous growth of population. They have rather to be sought in the complex economic and demographic phenomena of mutual adjustment between the demand for and the supply of wage labour, which the history of the capitalistic economies has long presented for study.

With respect then to the problem of distribution—which is also opened up by any adoption of the Keynesian thesis for long-period analysis—we may notice the relevance here of that relation, often used in these Notes, between the wage and the rate of profits, which, asserted by Ricardo, has recently been taken up again, overcoming the problems encountered by Ricardo and then by Marx for its exact formulation. This relation may in fact provide a basis for the necessary work of reconstruction. Thus, given such a relation, Keynes's suggestion that the average level of the rate of interest on long-term loans will be determined by conventional factors, ultimately subject to the policy of the monetary authorities (Keynes, 1936, pp. 203-4), would suffice to constitute the nucleus of a theory of distribution. Indeed, it seems reasonable to suppose that, as a result of competition in product markets, the average rate of profit and the average rate of interest on long-term loans will tend, over a sufficiently long period of time, to move in step with one another. If, then, the rate of interest depends on the policy of the monetary authorities, both the long-term movement of the average rate of profit and, through the relation just mentioned, that of real wages are explained by that policy. This does not entail maintaining afresh that the wage bargain has no power to change real wages: the policy of the monetary authorities is not conducted in a vacuum and the movement of prices and of the money wages determined in the wage bargain will be amongst the most important considerations in the formulation of that policy.

The possibility of what is today called structural unemployment is in fact admitted by Keynes. Cf., e.g., his passage 'The rate of interest may fluctuate for decades about a level which is chronically too high for full employment' (Keynes, 1936, p. 204; see also ibid., p. 217).

Cf. the hint in this direction given by Sraffa (1960), p. 33.
Appendix

This appendix deals with the relationship between the demand for capital as a stock and the demand for investment in the case of fixed capital.

Suppose, for example, that all capital goods last for 10 years, being of constant efficiency throughout their lives and that the initial capital stock is of a uniform age structure. Each year 1/10 of the newly existing set of capital goods will be used up, 'freeing' 1/10 of the workers employed in the economy. Each year, therefore, 1/10 of the initial physical capital can be replaced in the most appropriate form, and in 10 years the replacement cycle will be completed. If the initial prices were equilibrium prices and if conditions remain unchanged, the entrepreneurs will demand each year capital goods identical to those which have been used up during the year. At the interest rate prevailing in the initial situation, there will thus be an annual demand for investment equal in value to a given fraction (lying between 1/10 and 1/5 and depending on the interest rate) of the value shown by the demand for capital function at that interest rate. If the supply of gross savings is equal to that value of investment, the equilibrium will be maintained.

Suppose now that the supplies of the other factors, technical conditions and consumers' tastes all being unchanged - the rate of interest falls and the wage rate and product prices adapt without appreciable delay to the equilibrium compatible with the new rate of interest. The entrepreneurs will then have an incentive to employ the 1/10 of the workers ('freed' each year by the using up of the physical capital) with the techniques and in the industries which are most profitable at the new rate of interest;53 they will thus demand each year capital goods with a value equal to a given fraction, slightly greater than the previous fraction,54 of the value shown by the demand for capital function at the new rate of interest. Because of the form which the theory attributes to that function, the demand for investment will thus be greater than it was at the previous level of the rate of interest and will be able to absorb a greater volume of savings. By considering other possible levels of the rate of interest, one could thus define an investment demand schedule. It would no longer be identical to the demand curve for capital as it was in the case of circulating capital; it would nevertheless be a scale copy of it - but for the effect of the rate of interest on the fraction of the value of the total stock which is represented by the value of the yearly replacement - and would indeed reproduce its fundamental property of elasticity with respect to the rate of interest.

Addendum: Heterogeneous capital and the theory of value and distribution

Particular theoretical examples have forced the admission, in recent economic literature, that the switch of systems might operate in a direction contrary to the one traditionally assumed.54 The tendency however has been to label those cases as 'exceptions'': as if the principle about capital intensity had resulted from observed regularities, always liable to exception, and was not a pure deduction from postulates (like Böhm-Bawerk's 'average period of production') now generally admitted to be invalid.

Instead, it must be recognised that the traditional principle, drawn from incorrect premises, is itself incorrect. Moreover, the conditions in which a fall of r results in a relative cheapening of the less capital-intensive productive processes do not seem to be any less plausible than those in which the opposite would be true. This appears to undermine the ground on which rests the explanation of distribution in terms of demand and supply for capital and labour.

To see why that is so, we may begin from the relation between r and the value, in the chosen unit, of the physical capital employed in the economy. This value we shall indicate by K. The relation between r and K - the traditional 'demand function' for capital (saving) - was based on two assumptions: (a) that in the situation defined by each level of r, the labour employed is equal to the supply of it at the corresponding level of w; (b) that the composition of consumption output is that dictated by consumer demand at the prices and incomes55 defined by the level of r. We shall now grant these assumptions, but we shall restrict the choice of the consumers by supposing,
at first, zero net savings (i.e. in each situation, the capital goods are consumed and reproduced in unchanging quantities year by year). From these assumptions, and from what we know about changes in the systems of production and the relative prices of consumption goods, it follows that \( K \) may fall or rise, as \( r \) falls.

To clear the ground, we must now grant traditional theory two further assumptions in addition to (a) and (b): namely (c) that a tendency to net saving (i.e. a fall in consumption) appearing in the situation defined by a given level of \( r \), brings about a fall of \( r \); (d) as \( r \) and \( w \) change, with systems of production and relative outputs changing accordingly, net savings realised in the economy can still be meaningfully defined and can be measured — however broadly — by the difference between the \( K \) of the final and that of the initial situation.\(^{56}\)

Let us now imagine that the economy is initially in the situation defined by the level \( r^* \) of the rate of interest, with \( K^* \) as the amount of capital.\(^{57}\) Then a tendency to positive net savings appears (i.e. consumption is reduced). We assume that, after a time, the tendency to net saving disappears so that, if a new equilibrium is ever reached, the level of consumption will become that of the situation which corresponds to the new lower equilibrium value of \( r \).

We must now ask whether — as \( r \) falls from \( r^* \) to some level \( r \) because of the initial tendency to net saving — a new situation can always be found with an additional quantity of capital \( \Delta K \) representing the net savings which the community intended to make during the period. The form of the relation between \( r \) and \( K \) implies that such a new situation cannot always be found: however high \( r^* \) is, and however small \( \Delta K \), there may well not exist any lower rate of interest \( r \) at which \( K = K^* + \Delta K \). Or, to find a situation with an amount \( K \) of capital just larger than \( K^* \), we may need a fall of \( r \) so drastic as to make it clear that, in this case too, it is impossible to determine \( r \) by the supply and demand of 'capital' (saving).\(^{58}\)

This is not all. In traditional theory, our assumption (a) — of a persisting equality between the quantity of labour employed and the supply of it — found its justification in the idea of a demand function for labour. But the fact that, given the quantity of labour employed, \( K \) may rise as \( r \) rises, implies that the labour employed with a constant \( K \) must fall with the corresponding fall of \( w \). Thus — even if, by assumption (d), we grant that, in the face of changes in systems of production and relative outputs, we can speak of a constancy of capital and take that to mean constancy of \( K \) — there is no reason to suppose a tendency to equality between the demand and supply for labour. Assumption (a) is then unwarranted: the failure of a demand and supply analysis, which we first saw from the viewpoint of the capital market, has its mirror-image in the labour market.

Analogous results would have been reached had we imagined an initial rise in consumption (i.e. a tendency to negative net saving); or an initial change in the 'demand' conditions for capital and labour (i.e. a change in the relation between \( r \) and \( K \) due to changes in consumer tastes or in the methods of production available).

Thus, after following in the footsteps of traditional theory and attempting an analysis of distribution in terms of 'demand' and 'supply', we are forced to the conclusion that a change, however small, in the 'supply' or 'demand' conditions of labour or capital (saving) may result in drastic changes of \( r \) and \( w \). That analysis would even force us to admit that \( r \) may fall to zero or rise to its maximum, and hence \( w \) rise to its maximum or fall to zero, without bringing to equality the quantities supplied and demanded of the two factors.

Now, no such instability of an economy's wage and interest rates has ever been observed. The natural conclusion is that, in order to explain distribution, we must rely on forces other than 'supply' and 'demand'. The traditional theory of distribution was built, and accepted, in the belief that a fall of \( r \) — an increase in \( w \) — would always raise the proportion of 'capital' to labour in the economy: the theory becomes implausible once it is admitted

\(^{56}\) These assumptions are themselves highly questionable. It is beyond the scope of this article to discuss fully assumption (d). It should however be noted that in order to justify this traditional assumption, we should once more refer to the economy of Samuelson's 'parable', where a single commodity is produced by itself and labour (Samuelson, 1962). In that economy, physical capital and \( K \) would be one and the same thing. No change of relative outputs could arise there and changes in the systems of production would not require any qualitative change of the existing physical capital. Then, once we admit, with traditional theory, a tendency to the full utilisation of resources, any change of \( K \) could be seen as resulting from an equal opposite change in consumption. But in an economy with heterogeneous capital goods, more of the conditions listed above is verified. The changes in systems of production or in relative outputs will affect the capital stock by changing the kinds of capital goods or by increasing the quantity of some capital goods and decreasing that of others. The possibility of referring to physical increments of the capital stock will fail and with that will fail the possibility of any meaningful notion of 'net saving', not to mention 'net saving' in terms of \( K \). Then, even if we could grant traditional theory the existence of a tendency to the full utilisation of resources, we would have to admit that the changes in total consumption imposed by given changes in the physical capital stock would depend on the kinds of changes in the stocks and on the speed with which they have been accomplished — more than upon the difference between the \( K \) of the final and that of the initial situation. As for assumption (c), we may note that Keynes's negative conclusions of the flexibility of \( r \) can only be strengthened if, as we shall argue in the text, changes in \( r \) provide no mechanism for equalising 'demand' and 'supply' of capital (saving).

\(^{57}\) Unless we suppose that the system for the production of each commodity changes 'continuously' with \( r \), \( K \) can assume, at any level of \( r \) where two systems co-exist, any value between the extremes set by the two systems.

\(^{58}\) This conclusion would not be affected if we chose to measure capital in the economy by means of the chain-index method proposed by Champernowne (1953-4) and supported by Swan (1956, pp. 348 ff.). It is beyond our scope to discuss this measure of capital or the claim that it permits us to consider as the increase of capital brought about by net saving 'not the change in the value of the stock [in terms of consumption goods], but rather the value of the change' (Swan, 1956, pp. 349 and 356) (cf. however p. 33 above on 'physical increments' of the capital stock). It is sufficient to remark here that when measured in these terms the amount of capital per worker may fall together with \( r \) (though it cannot do so in the immediate proximity of \( r = 0 \)). In similar cases, Champernowne (1953-4, p. 118) asserts 'the only way that investment could remain positive ... would be for food wages to leap up and the rate of interest to leap down to levels where capital equipment ... [giving a higher ratio of capital to labour] became competitive'.

2. Notes on consumption, investment and effective demand
that this principle is not always valid.\(^9\)

The idea that demand and supply for factors of production determine distribution has become so deeply ingrained in economic thought that it is almost viewed as an immediate reflection of facts and not as the result of an elaborate theory. For the same reason, it is easily forgotten how comparatively recent that theory is. In the first systematic analysis of value and distribution by the English classical economists up to Ricardo, we would look in vain for the conception that demand and supply for labour and 'capital' achieve 'equilibrium' as the proportions in which those 'factors' are employed in the economy change with the wage and rate of profits. Thus, Ricardo saw no inconsistency between free competition and unemployment of labour. In his view lower wages could eliminate unemployment only by decreasing the growth of population or by favouring accumulation.

What we find in the classical economists is the idea that the wage is ruled by the 'necessaries of the labourer and his family'. Since they regarded these 'necessaries' as determined by social as much as by physiological conditions, we may see them as recognising that distribution is governed by social forces, the investigation of which falls largely outside the domain of the pure theory of value. The proper object of value theory was seen to be the study of the relations between the wage, the rate of profits and the system of relative prices. These relations would then provide the basis for studying the circumstances on which depends the distribution of the product between classes.

The distinction thus made by the classical economists between the study of value and the study of the forces governing distribution goes together with a separation between the study of value and that of levels of output. Since the inception of the marginal method this separation has been thought no more tenable than that between wage and distribution. But the weakness of the marginalist position should now be apparent.

The outputs of commodities and, hence, consumer choice, can influence relative prices, either by modifying the technical conditions of production (i.e. the set of methods available for producing each commodity) or by affecting the rates of wages and profits.

The first possibility arises because increases in the output of a commodity may, on the one hand, bring about an increase in the division of labour in any

\(^9\) According to Professor Hicks (1965, p. 154), the failure of the principle about capital intensity leaves us in a position which, though not satisfactory, 'has parallels in other parts of economic theory'. He thus seems to suggest that the possible fall, as \( r \) falls, in the value of capital per worker does not affect traditional theory any more than do the well-known anomalies of the demand for inferior goods. This seems to ignore that the case of inferior goods did not call into question the general supply-and-demand analysis of prices only because it could be plausibly argued that (a) should those anomalies give rise to a multiplicity of equilibria, the equilibrium position with the highest price would be stable, while that with the lowest price would, in all likelihood, be stable too; and (b) if the latter equilibrium were unstable, the rest of the economic system would not be affected since all we would have is that once the price has fallen below the level of that equilibrium the commodity would not be produced due to a lack of demand willing to pay the supply price. No analogous arguments have been advanced by Professor Hicks with respect to the fall of capital intensity as \( r \) falls.

of its possible forms and, on the other hand, where scarce natural resources are used, may force the adoption of methods which increase the output obtained from those resources. But with regard to the changes in the division of labour due to increases in output, the traditional analysis of the firm has in fact restricted the theory of a competitive economy to those technical improvements that are 'external' to the firm. At the same time, the approach in terms of outputs of single commodities has ruled out the technical improvements deriving from the economy's general growth. Consequently, the only 'economies of scale' considered were those 'external to the firm', but 'internal to the industry' - the class which, it has been noted, 'is most seldom to be met with' (Sraffa, 1926, p. 185 of 1953 edn). There remains the case of scarce natural resources. This - as Ricardo showed - can be conveniently treated by first: assuming the outputs of the commodities to be given, then moving on to inquire about the technical changes associated with changes in outputs, and then making up the changes in the relations between \( r, w \) and the prices (including the prices for the use of natural resources). This method would also allow a less restricted treatment of the 'economies of scale'.\(^6\)

The second way in which consumer choice and, hence, outputs can influence relative prices is by affecting the relative scarcity of labour and capital, and thus the wage and rate of interest, given the supply of the two factors and the state of technical knowledge. This link between prices and outputs is one and the same thing as the explanation of distribution by demand and supply of factors of production: and it becomes untenable once that explanation is abandoned.

Thus, the separation of the pure theory of value from the study of the circumstances governing changes in the outputs of commodities does not seem to meet any essential difficulty. On the contrary, it may open the way for a more satisfactory treatment of the relations between outputs and the technical conditions of production. Moreover, by freeing the theory of value from the assumption of consumers' tastes given from outside the economic system, this separation may favour a better understanding of consumption and its dependence on the rest of the system.

With this, the theory of value will lose the all-embracing quality it assumed with the marginal method. But what will be lost in scope will certainly be gained in consistency and, we may hope, in fruitfulness.

\(^{6}\) This method is apparently the one Sraffa points to, when in the Preface to Production of Commodities by Means of Commodities he writes 'no changes in output ... are considered, so that no question arises as to the variation or constancy of returns' and adds: 'This standpoint, which is that of the old classical economists from Adam Smith to Ricardo, has been submerged and forgotten since the advent of the marginal method' (Sraffa, 1960, p. v).