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## ALTERNATIVE THEORIES OF THE RATE OF INTEREST

### I

THERE is, I think, a concealed difference of opinion, which is of very great importance, between myself and a group of economists who express themselves as agreeing with me in abandoning the theory that the rate of interest is (in Prof. Ohlin's words) "determined by the condition that it equalises the supply of and the demand for saving, or, in other words, equalises saving and investment." The object of the first section of this article is to bring this difference to a head.

The liquidity-preference theory of the rate of interest which I have set forth in my *General Theory of Employment, Interest and Money* makes the rate of interest to depend on the present supply of *money* and the demand schedule for a present claim on money in terms of a deferred claim on money. This can be put briefly by saying that the rate of interest depends on the demand and supply of money; though this may be misleading, because it obscures the answer to the question, Demand for money in terms of what? The alternative theory held, I gather, by Prof. Ohlin and his group of Swedish economists, by Mr. Robertson and Mr. Hicks, and probably by many others, makes it to depend, put briefly, on the demand and supply of *credit* or, alternatively (meaning the same thing), of *loans*, at different rates of interest. Some of the writers (as will be seen from the quotations given below) believe that my theory is on the whole the same as theirs and mainly amounts to expressing it in a somewhat different way.<sup>1</sup> Nevertheless the theories are, I believe, radically opposed to one another. The following quotations will explain the point at issue.

Much the fullest account of this theory has been given by Prof. Ohlin in the article printed above (p. 221).<sup>2</sup> For convenience of

<sup>1</sup> Prof. Ohlin, as will be seen above (p. 227), indicates a difference "in one essential respect," but this is much subsequent to the point in his argument where the divergence I shall call attention to occurs—which is, indeed, from the very outset.

<sup>2</sup> Since this article immediately succeeds Prof. Ohlin's, I ought to say, to avoid misunderstanding, that it is not intended to discuss more than a small part of his arguments, many of which I accept at least in part. In particular, I hope to return later to a discussion of what the Swedish school conveniently

reference, I will quote what seems to me to be the essential passage; but the reader can easily compare it with the complete context:—

The rate of interest is simply the price of credit, and is therefore governed by the supply of and demand for credit. The banking system—through its ability to give credit—*can* influence, and to some extent does affect, the interest level. . . .

*Ex-post* one finds equality between the total quantity of new credit during the period and the sum total of positive individual savings. (Of course, a person who uses his own savings is then said to give credit to himself; this supply and this demand offset one another and exert no influence on the price of credit.) Thus, there is a connection between the rate of interest, which is the price of credit, and the process of economic activity, of which the flow of saving is a part.

To explain how the rates of interest are actually determined we need, however, a causal analysis which runs chiefly in *ex-ante* terms. What governs the demand and supply of credit? Two ways of reasoning are possible. One is *net* and deals only with *new* credit, and the other is *gross* and includes the outstanding *old* credits. The willingness of certain individuals during a given period to *increase* their holdings of various claims and other kinds of assets *minus* the willingness of others to *reduce* their corresponding holdings gives the supply curves for the different kinds of new credit during the period. *Naturally, the quantities each individual is willing to supply depend on the interest rates.*<sup>1</sup> In other words, the plans are in the nature of alternative purchase and sales plans. Similarly, the total supply of *new* claims *minus* the reduction in the outstanding volume of *old* ones gives the demand—also a function of the rates of interest—for the different kinds of credit during the period. The prices fixed on the market for these different claims—and thereby the rates of interest—are governed by this supply and demand in the usual way.<sup>2</sup>

Before analysing this passage, it will be convenient to give my texts from Mr. Hicks and Mr. Robertson. Mr. Hicks, reviewing

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call *ex-post* and *ex-ante* concepts. I must, however, take this opportunity to apologise at once if I have led any reader to suppose that, as Prof. Ohlin seems to think (p. 234 above), I regard Mr. Hawtrey and Mr. Robertson as classical economists! On the contrary, they strayed from the fold sooner than I did. I regard Mr. Hawtrey as my grandparent and Mr. Robertson as my parent in the paths of errancy, and I have been greatly influenced by them. I might also meet Prof. Ohlin's complaint by adopting Wicksell as my great-grandparent, if I had known his works in more detail at an earlier stage in my own thought and also if I did not have the feeling that, Wicksell was *trying* to be "classical." As it is, so far as I am concerned, I find, looking back, that it was Prof. Irving Fisher who was the great-grandparent who first influenced me strongly towards regarding money as a "real" factor.

<sup>1</sup> My italics.

<sup>2</sup> Pp. 220 and 224-5 above.

my book in the *ECONOMIC JOURNAL* (June 1936, p. 296), writes :—

The particular way adopted by Mr. Keynes to bring this out is his doctrine of "liquidity preference." The individual has a choice between holding money and lending it out—a choice that can be expressed by means of a demand curve, showing the amounts of money he will desire to hold at different rates of interest. The rate of interest will be determined at that level which makes the demand for money equal to the supply.

This looks a most revolutionary doctrine; but it is not, I think, as revolutionary as it seems. For over any short period, the difference between the value of the things an individual acquires (including money) must, apart from gifts, equal the change in his net debt—his borrowing and lending. The same will apply to a firm. If, therefore, the demand for every commodity and factor equals the supply, and if the demand for money equals the supply of money, it follows by mere arithmetic that the demand for loans must equal the supply of loans (when these latter are interpreted in a properly inclusive way). Similarly, if the equations of supply and demand hold for commodities, factors and loans, it will follow automatically that the demand for money equals the supply of money.

The ordinary method of economic theory would be to regard each price as determined by the demand and supply equation for the corresponding commodity or factor; the rate of interest as determined by the demand and supply for loans. If we work in this way, the equation for demand and supply is otiose—it follows from the rest; and fortunately, too, it is not wanted, because we have determined the whole price system without it. But we could equally well work in another way. We could allot to each commodity or factor the demand and supply equation for that commodity or factor, as before; but we could allot to the rate of interest the equation for the demand and supply of money. If we do this, the equation for loans becomes otiose, automatically following from the rest. "Savings" and "Investment" are therefore automatically equal.

This latter method is the method of Mr. Keynes. It is a perfectly legitimate method, but it does not prove other methods to be wrong. The choice between them is purely a question of convenience.

This is not so clear as Prof. Ohlin, since the meaning of "demand and supply for loans" is not defined. But Mr. Hicks expressly refers in this context to being influenced by the ideas of the Swedish economists. I assume, therefore, that he means much the same as Professor Ohlin.

My text from Mr. Robertson is to be found in his comments on my book printed in the *Quarterly Journal of Economics* (November 1936), especially pp. 175–191, which conclude :—

Ultimately, therefore, it is not as a refutation of a common-sense account of events in terms of supply and demand for loanable funds, but as an alternative version of it, that Mr. Keynes' account as finally developed must be regarded. As such its terminology seems to me unfortunate in directing our attention away from the factor which in the later stages of a monetary expansion usually proves to be of decisive importance.<sup>1</sup>

Mr. Robertson gives no reference to where the “common-sense account of events in terms of supply and demand for loanable funds” is to be found, beyond a footnote referring to the passage by Mr. Hicks quoted above; but I take this to mean that he too accepts a treatment more or less on the above lines. I shall assume, therefore, in what follows that Prof. Ohlin's theory is representative of the general line of approach in question.

We will now return to Professor Ohlin's argument. Assets in different forms will have prices in terms of money such as to make them equally attractive to the marginal holder, having regard to all the circumstances. The gross supply of credit, according to his definition, is then the aggregate money-value thus established of all the assets in existence; whilst the net supply of credit during a given period is, in the same way, the money-value of the increment of all the assets during the period. Prof. Ohlin argues that this quantity—*i.e.* the net supply of credit—measures the net willingness of individuals to increase their holdings of claims and assets. “Naturally,” he continues, “the quantities each individual is willing to supply depend on the interest rates.” But what does this mean? *The net supply of credit*, thus defined, is exactly the same thing as the quantity of saving; and the conclusion is exactly the same as the classical doctrine, over again, to the effect that the quantity of saving depends on the rate of interest.

What about the demand for credit? “Similarly,” Prof. Ohlin explains, “the total supply of *new* claims *minus* the reduction in the outstanding volume of *old* ones gives the demand—also a function of the rates of interest—for the different kinds of credit during the period.” In other words, the net demand for credit at different rates of interest is exactly the same thing as the quantity of net investment at different rates of interest.

<sup>1</sup> *I.e.* the influence of productivity.

Finally, Prof. Ohlin concludes, "the prices fixed on the market for these different claims—and thereby the rates of interest—are governed by this supply and demand in the usual way." Thus we are completely back again at the classical doctrine which Prof. Ohlin has just repudiated—namely, that the rate of interest is fixed at the level where the supply of credit, in the shape of saving, is equal to the demand for credit, in the shape of investment. Exactly the same argument applies as that which Prof. Ohlin has used at the very commencement of his article (p. 221 above) where he writes: "Obviously the rate of interest cannot—with the terminology used above—be determined by the condition that it equalises the supply of and demand for savings, or, in other words, equalises savings and investment. For savings and investment are equal *ex definitione*, whatever interest level exists on the market." For—with the terminology used above—the net supply and demand of credit are equal *ex definitione* whatever interest level exists on the market.

The above is altogether remote from my contention that the rate of interest (as we call it for short) is, strictly speaking, a *monetary* phenomenon in the special sense that it is the *own-rate* of interest (*General Theory*, p. 223) on money itself, *i.e.* that it equalises the advantages of holding actual cash and a deferred claim on cash.

## II

What is it that makes the 'supply and demand for credit' theory of the rate of interest plausible to so many people? And why does Prof. Ohlin begin his explanation by saying "To explain how the rates of interest are actually determined, we need, however, a causal analysis which runs chiefly in *ex-ante* terms," although the distinction between *ex-ante* and *ex-post* disappears from the rest of his argument?

I suggest that there may be two other sources of confusion distinct from that which we have just discussed. The first is concerned with the ambiguity of 'credit.' Prof. Ohlin means by 'credit' the total supply of loans from all sources. But other writers mean by it the supply of *bank* loans. Now, although changes in the quantity of bank loans may, subject to certain conditions, be equal to the changes in the quantity of bank money, the resemblance of this also to my theory would be only superficial. For it is concerned with changes in the *demand for bank borrowing*, whereas I am concerned with changes in the *demand for money*; and those who desire to hold money only overlap partially and

temporarily with those who desire to be in debt to the banks. I do not propose, however, to pursue further this second possible source of confusion; partly because it raises a distinct set of issues which have some interest and importance in themselves; and partly because I do not know at all clearly what those have in mind who (if there are any such) believe that the rate of interest depends on the demand for new bank loans, and would, therefore, prefer to wait until someone has explained this theory (if there is such a theory) as clearly as Prof. Ohlin has explained his.

I proceed to the third possible source of confusion, due to the fact (which may deserve more emphasis than I have given it previously) that an investment *decision* (Prof. Ohlin's investment *ex-ante*) may sometimes involve a temporary demand for money before it is carried out, quite distinct from the demand for active balances which will arise as a result of the investment activity whilst it is going on. This demand may arise in the following way.

Planned investment—*i.e.* investment *ex-ante*—may have to secure its “financial provision” *before* the investment takes place; that is to say, before the corresponding saving has taken place. It is, so to speak, as though a particular piece of saving had to be earmarked against a particular piece of investment before either has occurred, before it is known who is going to do the particular piece of saving, and by someone who is not going to do the saving himself. There has, therefore, to be a technique to bridge this gap between the time when the *decision* to invest is taken and the time when the correlative investment and saving actually occur.

This service may be provided either by the new issue market or by the banks;—which it is, makes no difference.<sup>1</sup> Even if the entrepreneur avails himself of the financial provision which he has arranged beforehand *pari passu* with his actual expenditure on the investment, either by calling up instalments in respect of his new market-issue exactly when he wants them or by arranging overdraft facilities with his bank, it will still be true that the market's commitments will be in excess of actual saving to date and there is a limit to the extent of the commitments which the market will agree to enter into in advance.<sup>2</sup> But if he accumulates a cash balance beforehand (which is more likely to occur if he is financing himself by a new market-issue than if he is depending on his bank), then an accumulation of unexecuted or incompletely

<sup>1</sup> It might make a difference to those who maintain that the rate of interest depends on the demand and supply for new bank loans, as distinct from loans in general. But I am not now discussing this question.

<sup>2</sup> This point is made by Mr. Kalecki: “A Theory of the Business Cycle,” *Review of Economic Studies*, February, 1937, p. 85.

executed investment-decisions may occasion for the time being an extra special demand for cash. To avoid confusion with Prof. Ohlin's sense of the word, let us call this advance provision of cash the 'finance' required by the current decisions to invest. Investment finance in this sense is, of course, only a special case of the finance required by any productive process; but since it is subject to special fluctuations of its own, I should (I now think) have done well to have emphasised it when I analysed the various sources of the demand for money. It may be regarded as lying half-way, so to speak, between the active and the inactive balances. If investment is proceeding at a steady rate, the finance (or the commitments to finance) required can be supplied from a revolving fund of a more or less constant amount, one entrepreneur having his finance replenished for the purpose of a projected investment as another exhausts his on paying for his completed investment. But if decisions to invest are (*e.g.*) increasing, the extra finance involved will constitute an additional demand for money.

Now, a pressure to secure more finance than usual may easily affect the rate of interest through its influence on the demand for money; and unless the banking system is prepared to augment the supply of money, lack of finance may prove an important obstacle to more than a certain amount of investment decisions being on the tapis at the same time. But 'finance' has nothing to do with saving. At the 'financial' stage of the proceedings no net saving has taken place on anyone's part, just as there has been no net investment. 'Finance' and 'commitments to finance' are mere credit and debit book entries, which allow entrepreneurs to go ahead with assurance.

It is possible, then, that confusion has arisen between credit in the sense of 'finance,' credit in the sense of 'bank loans' and credit in the sense of 'saving.' I have not attempted to deal here with the second. It should be observed that a confusion between the first and the last would be one between a flow and a stock. Credit, in the sense of 'finance,' looks after a flow of investment. It is a revolving fund which can be used over and over again. It does not absorb or exhaust any resources. The same 'finance' can tackle one investment after another. But credit, in Prof. Ohlin's sense of 'saving,' relates to a stock. Each new net investment has new net saving attached to it. The saving can be used once only. It relates to the net addition to the stock of actual assets.

If by 'credit' we mean 'finance,' I have no objection at all to admitting the demand for finance as one of the factors influencing



the rate of interest. For 'finance' constitutes, as we have seen, an additional demand for liquid cash in exchange for a deferred claim. It is, in the literal sense, a demand for money. But finance is not the only source of demand for money, and the terms on which it is supplied, whether through the banks or through the new issue market, must be more or less the same as the terms on which other demands for money are supplied. Thus it is precisely the liquidity-premium on cash ruling in the market which determines the rate of interest at which finance is obtainable.

The above analysis is useful in exhibiting in what sense a heavy demand for investment can exhaust the market and be held up by lack of financial facilities on reasonable terms. It is, to an important extent, the 'financial' facilities which regulate the *pace* of new investment. Some people find it a paradox that, up to the point of full employment, no amount of actual investment, however great, can exhaust and exceed the supply of savings, which will always exactly keep pace.<sup>1</sup> If this is found paradoxical, it is because it is confused with the fact that too great a press of uncompleted investment decisions is quite capable of exhausting the available finance, if the banking system is unwilling to increase the supply of money and the supply from existing holders is inelastic. It is the supply of available finance which, in practice, holds up from time to time the onrush of 'new issues.' But if the banking system chooses to make the finance available and the investment projected by the new issues actually takes place, the appropriate level of incomes will be generated out of which there will necessarily remain over an amount of saving exactly sufficient to take care of the new investment. The control of finance is, indeed, a potent, though sometimes dangerous, method for regulating the rate of investment (though much more potent when used as a curb than as a stimulus). Yet this is only another way of expressing the power of the banks through their control over the supply of money—*i.e.* of liquidity.

### III

The theory of the rate of interest which prevailed before (let us say) 1914 regarded it as the factor which ensured equality between saving and investment. It was never suggested that saving and

<sup>1</sup> Though any particular actual investment may, of course, fall short, for various reasons, of the investment, which was intended at some earlier period. (It is difficult to make this precise because aggregate *ex-post* investment in any period cannot be related to, or compared with, the aggregate *ex-ante* investment at any specified previous date.) As for the concept of *ex-ante* saving, I can attach no sound sense to it.

investment could be unequal. This idea arose (for the first time, so far as I am aware) with certain post-war theories. In maintaining the equality of saving and investment, I am, therefore, returning to old-fashioned orthodoxy. The novelty in my treatment of saving and investment consists, not in my maintaining their necessary aggregate equality, but in the proposition that it is, not the rate of interest, but the level of incomes which (in conjunction with certain other factors) ensures this equality.

I should, however, like to take this opportunity to correct a misunderstanding which runs through Mr. Hawtrey's criticisms of my work, in his *Capital and Employment*, and indeed occupies a major fraction of them. In spite of my best attempts to explain the contrary to him, Mr. Hawtrey is convinced that I have so defined Saving and Investment that they are not merely *equal*, but *identical*. He thinks that 'they are two different names for the same thing' (p. 174), and that in any sentence in which the word 'investment' occurs, the word 'saving' could be substituted for it without any change in the meaning (p. 184). It would have been easy for Mr. Hawtrey to try the experiment. Perhaps the simplest example would be in the passages where I speak of individual saving, since it is only aggregate saving and aggregate investment which are equal; or he might have tried it in the passages where I explain that acts of saving and acts of investment are frequently or usually performed by different people.

Aggregate saving and aggregate investment, in the senses in which I have defined them, are necessarily equal in the same way in which the aggregate purchases of anything on the market are equal to the aggregate sales. But this does not mean that 'buying' and 'selling' are identical terms, and that the laws of supply and demand are meaningless. Or again, they are equal in the same way in which, on Mr. Hawtrey's definitions, aggregate saving is equal to the sum of capital outlay and the increase of working capital.

I occupied much space in the first half of my book by analyses and definitions of Income, Saving, Investment and other such terms. The excuse and explanation of this are to be found in the widespread confusion which has surrounded these terms in recent discussions, and the subtlety of the points involved. I felt that I had to try to clear the matter up to the best of my ability. But, although the final upshot of my discussion is on the whole conservative (I do not think that I differ substantially, though I have tried to be a little more precise, from Marshall or any of the

older economists), these passages have had the unfortunate effect of persuading some readers that the clue to the peculiarity of my doctrine is to be found here.

As I have said above, 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? One naturally began by supposing that the rate of interest must be determined in some sense by productivity—that it was, perhaps, simply the monetary equivalent of the marginal efficiency of capital, the latter being independently fixed by physical and technical considerations in conjunction with the expected demand. It was only when this line of approach led repeatedly to what seemed to be circular reasoning, that I hit on what I now think to be the true explanation. The resulting theory, whether right or wrong, is exceedingly simple—namely, that the rate of interest on a loan of given quality and maturity has to be established at the level which, in the opinion of those who have the opportunity of choice—*i.e.* of wealth-holders—equalises the attractions of holding idle cash and of holding the loan. It would be true to say that this by itself does not carry us very far. But it gives us firm and intelligible ground from which to proceed.

#### IV

If we mean by ‘hoarding’ the holding of idle balances,<sup>1</sup> then my theory of the rate of interest might be expressed by saying that the rate of interest serves to equate the demand and supply of hoards—*i.e.* it must be sufficiently high to *offset* an increased propensity to hoard relatively to the supply of idle balances available. The function of the rate of interest is to modify the money-prices of other capital assets in such a way as to equalise the attraction of holding them and of holding cash. This has nothing whatever to do with current saving or new investment. There can never be available for additional hoards a surplus of current saving over and above what is represented by current investment; and this is just as true if, like Mr. Hawtrey, we

<sup>1</sup> Mr. Hawtrey (*Capital and Employment*, p. 167) suggests that I should use the terms ‘active’ and ‘idle’ balances.

exclude changes in working capital from our definition of investment,<sup>1</sup> since in this case current savings are all absorbed by current investment *plus* the increase in working capital. Moreover, no amount of anxiety by the public to increase their hoards can affect the amount of hoarding, which depends on the willingness of the banks to acquire (or dispose of) additional assets beyond what is required to offset changes in the active balances. If the banks stand firm, an increased propensity to hoard raises the rate of interest, and thereby lowers the prices of capital assets other than cash, until people give up the idea of selling them or of refraining from buying them in order to increase their hoards.<sup>2</sup> The rate of interest is, if you like, the *price* of hoards in the sense that it measures the pecuniary sacrifice which the holder of a hoard thinks it worth while to suffer in preferring it to other claims and assets having an equal present value.

I emphasise these obvious matters to clear our minds of the idea that the quantity of hoards depends in any way on what people are doing with their savings, or that there is any connection between idle balances and the conception (meaningless on my definitions) of idle savings.<sup>3</sup> But I have only a limited hope of success. There is a deep-seated obsession associating idle balances, not with the action of the banks in fixing the supply of cash nor with the attitude of the public towards the comparative attractions of cash and of other assets, but with some aspect of current savings. Even so careful and candid a reader of my recent book

<sup>1</sup> I much prefer Prof. Ohlin's distinction, which is very useful in some connections, between investment *ex-ante* and investment *ex-post*, *i.e.* between designed and actual investment, to Mr. Hawtrey's between investment in fixed and in working capital. Indeed, Mr. Hawtrey often needs to distinguish between designed and actual changes in working capital, and, if it were not for his emphasis on designed changes in working capital due to changes in the short-term rate of interest, I believe that Prof. Ohlin's definitions might suit him better than his own.

<sup>2</sup> For this reason it is not true, as Mr. Hawtrey maintains (*Capital and Employment*, pp. 210 *et seq.*), that the importance of my theory can be tested by examining the magnitude and the variability of hoards.

<sup>3</sup> With Mr. Hawtrey's definitions idle savings are equal to the increase in working capital. If we were to assume (I take this assumption because it probably suits Mr. Hawtrey best) that all working capital has to be financed by bank loans, an increase in working capital must be associated either with an increase in bank assets or with the banks' disposing in the market of some other asset which they previously possessed. If the propensity to hoard is the same as before (and I see no reason why the existence of idle savings in Mr. Hawtrey's sense should affect the propensity to hoard one way or the other), and the banks choose the alternative of increasing their assets, the rate of interest will fall; whilst if they choose the other alternative, of disposing of an asset, they will be able to do so at the previously ruling price and the rate of interest will be unchanged. If, on the other hand, the propensity to hoard is changed, then this influence on the rate of interest will be superimposed on the influence just discussed.

as Mr. Hawtrey begins his discussion of it (in spite of my repeated explanations that this is *not* what I say) by writing : “ Mr. Keynes’ contention is that a portion of savings will be withheld from active investment and accumulated in idle balances, and that the amount of this portion depends on the rate of interest, so that the rate of interest is determined by the amount of money available to form these idle balances.”

To speak of the “ Liquidity-preference Theory ” of the Rate of Interest is, indeed, to dignify it too much. It is like speaking of the “ Professorship Theory ” of Ohlin or the “ Civil-Servant Theory ” of Hawtrey. I am simply stating what it is, the significant theories on the subject being subsequent. And in stating what it is, I follow the books on arithmetic and accept the accuracy of what is taught in preparatory schools.

J. M. KEYNES