Mr. Keynes and the "Classics"; A Suggested Interpretation

Author(s): J. R. Hicks

Source: *Econometrica*, Apr., 1937, Vol. 5, No. 2 (Apr., 1937), pp. 147-159

Published by: The Econometric Society

Stable URL: https://www.jstor.org/stable/1907242

MR. KEYNES AND THE "CLASSICS"; A SUGGESTED INTERPRETATION[1]

By J. R. Hicks

I

It will be admitted by the least charitable reader that the entertainment value of Mr. Keynes' *General Theory of Employment* is considerably enhanced by its satiric aspect. But it is also clear that many readers have been left very bewildered by this Dunciad. Even if they are convinced by Mr. Keynes' arguments and humbly acknowledge themselves to have been "classical economists" in the past, they find it hard to remember that they believed in their unregenerate days the things Mr. Keynes says they believed. And there are no doubt others who find their historic doubts a stumbling block, which prevents them from getting as much illumination from the positive theory as they might otherwise have got.

One of the main reasons for this situation is undoubtedly to be found in the fact that Mr. Keynes takes as typical of "Classical economics" the later writings of Professor Pigou, particularly *The Theory of Unemployment*. Now *The Theory of Unemployment* is a fairly new book, and an exceedingly difficult book; so that it is safe to say that it has not yet made much impression on the ordinary teaching of economics. To most people its doctrines seem quite as strange and novel as the doctrines of Mr. Keynes himself; so that to be told that he has believed these things himself leaves the ordinary economist quite bewildered.

For example, Professor Pigou's theory runs, to a quite amazing extent, in real terms. Not only is his theory a theory of real wages and unemployment; but numbers of problems which anyone else would have preferred to investigate in money terms are investigated by Professor Pigou in terms of "wage-goods." The ordinary classical economist has no part in this *tour de force*.

But if, on behalf of the ordinary classical economist, we declare that he would have preferred to investigate many of those problems in money terms, Mr. Keynes will reply that there is no classical theory of money wages and employment. It is quite true that such a theory cannot easily be found in the textbooks. But this is only because most of the textbooks were written at a time when general changes in money wages in a closed system did not present an important problem. There can be little doubt that most economists have thought that they had

[1] Based on a paper which was read at the Oxford meeting of the Econometric Society (September, 1936) and which called forth an interesting discussion. It has been modified subsequently, partly in the light of that discussion, and partly as a result of further discussion in Cambridge.

a pretty fair idea of what the relation between money wages and employment actually was.

In these circumstances, it seems worth while to try to construct a typical "classical" theory, built on an earlier and cruder model than Professor Pigou's. If we can construct such a theory, and show that it does give results which have in fact been commonly taken for granted, but which do not agree with Mr. Keynes' conclusions, then we shall at last have a satisfactory basis of comparison. We may hope to be able to isolate Mr. Keynes' innovations, and so to discover what are the real issues in dispute.

Since our purpose is comparison, I shall try to set out my typical classical theory in a form similar to that in which Mr. Keynes sets out his own theory; and I shall leave out of account all secondary complications which do not bear closely upon this special question in hand. Thus I assume that I am dealing with a short period in which the quantity of physical equipment of all kinds available can be taken as fixed. I assume homogeneous labour. I assume further that depreciation can be neglected, so that the output of investment goods corresponds to new investment. This is a dangerous simplification, but the important issues raised by Mr. Keynes in his chapter on user cost are irrelevant for our purposes.

Let us begin by assuming that w, the rate of money wages per head, can be taken as given.

Let x, y, be the outputs of investment goods and consumption goods respectively, and N_x, N_y, be the numbers of men employed in producing them. Since the amount of physical equipment specialised to each industry is given, $x = f_x(N_x)$ and $y = f_y(N_y)$, where f_x, f_y, are *given* functions.

Let M be the *given* quantity of money.

It is desired to determine N_x and N_y.

First, the price-level of investment goods = their marginal cost = $w(dN_x/dx)$. And the price-level of consumption goods = their marginal cost = $w(dN_y/dy)$.

Income earned in investment trades (value of investment, or simply Investment) = $wx(dN_x/dx)$. Call this I_x.

Income earned in consumption trades = $wy(dN_y/dy)$.

Total Income = $wx(dN_x/dx) + wy(dN_y/dy)$. Call this I.

I_x is therefore a given function of N_x, I of N_x and N_y. Once I and I_x are determined, N_x and N_y can be determined.

Now let us assume the "Cambridge Quantity equation"—that there is some definite relation between Income and the demand for money. Then, approximately, and apart from the fact that the demand for money may depend not only upon total Income, but also upon its dis-

tribution between people with relatively large and relatively small demands for balances, we can write

$$M = kI.$$

As soon as k is given, total Income is therefore determined.

In order to determine I_x, we need two equations. One tells us that the amount of investment (looked at as demand for capital) depends upon the rate of interest:

$$I_x = C(i).$$

This is what becomes the marginal-efficiency-of-capital schedule in Mr. Keynes' work.

Further, Investment = Saving. And saving depends upon the rate of interest and, if you like, Income. $\therefore I_x = S(i, I)$. (Since, however, Income is already determined, we do not need to bother about inserting Income here unless we choose.)

Taking them as a system, however, we have three fundamental equations,

$$M = kI, \quad I_x = C(i), \quad I_x = S(i, I),$$

to determine three unknowns, I, I_x, i. As we have found earlier, N_x and N_y can be determined from I and I_x. Total employment, $N_x + N_y$, is therefore determined.

Let us consider some properties of this system. It follows directly from the first equation that as soon as k and M are given, I is completely determined; that is to say, total income depends directly upon the quantity of money. Total employment, however, is not necessarily determined at once from income, since it will usually depend to some extent upon the proportion of income saved, and thus upon the way production is divided between investment and consumption-goods trades. (If it so happened that the elasticities of supply were the same in each of these trades, then a shifting of demand between them would produce compensating movements in N_x and N_y, and consequently no change in total employment.)

An increase in the inducement to invest (i.e., a rightward movement of the schedule of the marginal efficiency of capital, which we have written as $C(i)$) will tend to raise the rate of interest, and so to affect saving. If the amount of saving rises, the amount of investment will rise too; labour will be employed more in the investment trades, less in the consumption trades; this will increase total employment if the elasticity of supply in the investment trades is greater than that in the consumption-goods trades—diminish it if *vice versa*.

An increase in the supply of money will necessarily raise total income, for people will increase their spending and lending until incomes have risen sufficiently to restore k to its former level. The rise in income

will tend to increase employment, both in making consumption goods and in making investment goods. The total effect on employment depends upon the ratio between the expansions of these industries; and that depends upon the proportion of their increased incomes which people desire to save, which also governs the rate of interest.

So far we have assumed the rate of money wages to be given; but so long as we assume that k is independent of the level of wages, there is no difficulty about this problem either. A rise in the rate of money wages will necessarily diminish employment and raise real wages. For an unchanged money income cannot continue to buy an unchanged quantity of goods at a higher price-level; and, unless the price-level rises, the prices of goods will not cover their marginal costs. There must therefore be a fall in employment; as employment falls, marginal costs in terms of labour will diminish and therefore real wages rise. (Since a change in money wages is always accompanied by a change in real wages in the same direction, if not in the same proportion, no harm will be done, and some advantage will perhaps be secured, if one prefers to work in terms of real wages. Naturally most "classical economists" have taken this line.)

I think it will be agreed that we have here a quite reasonably consistent theory, and a theory which is also consistent with the pronouncements of a recognizable group of economists. Admittedly it follows from this theory that you may be able to increase employment by direct inflation; but whether or not you decide to favour that policy still depends upon your judgment about the probable reaction on wages, and also—in a national area—upon your views about the international standard.

Historically, this theory descends from Ricardo, though it is not actually Ricardian; it is probably more or less the theory that was held by Marshall. But with Marshall it was already beginning to be qualified in important ways; his successors have qualified it still further. What Mr. Keynes has done is to lay enormous emphasis on the qualifications, so that they almost blot out the original theory. Let us follow out this process of development.

II

When a theory like the "classical" theory we have just described is applied to the analysis of industrial fluctuations, it gets into difficulties in several ways. It is evident that total money income experiences great variations in the course of a trade cycle, and the classical theory can only explain these by variations in M or in k, or, as a third and last alternative, by changes in distribution.

(1) Variation in M is simplest and most obvious, and has been relied

on to a large extent. But the variations in M that are traceable during a trade cycle are variations that take place through the banks—they are variations in bank loans; if we are to rely on them it is urgently necessary for us to explain the connection between the supply of bank money and the rate of interest. This can be done roughly by thinking of banks as persons who are strongly inclined to pass on money by lending rather than spending it. Their action therefore tends at first to lower interest rates, and only afterwards, when the money passes into the hands of spenders, to raise prices and incomes. "The new currency, or the increase of currency, goes, not to private persons, but to the banking centers; and therefore, it increases the willingness of lenders to lend in the first instance, and lowers the rate of discount. But it afterwards raises prices; and therefore it tends to increase discount."[2] This is superficially satisfactory; but if we endeavoured to give a more precise account of this process we should soon get into difficulties. What determines the amount of money needed to produce a given fall in the rate of interest? What determines the length of time for which the low rate will last? These are not easy questions to answer.

(2) In so far as we rely upon changes in k, we can also do well enough up to a point. Changes in k can be related to changes in confidence, and it is realistic to hold that the rising prices of a boom occur because optimism encourages a reduction in balances; the falling prices of a slump because pessimism and uncertainty dictate an increase. But as soon as we take this step it becomes natural to ask whether k has not abdicated its status as an independent variable, and has not become liable to be influenced by others among the variables in our fundamental equations.

(3) This last consideration is powerfully supported by another, of more purely theoretical character. On grounds of pure value theory, it is evident that the direct sacrifice made by a person who holds a stock of money is a sacrifice of interest; and it is hard to believe that the marginal principle does not operate at all in this field. As Lavington put it: "The quantity of resources which (an individual) holds in the form of money will be such that the unit of money which is just and only just worth while holding in this form yields him a return of convenience and security equal to the yield of satisfaction derived from the marginal unit spent on consumables, and equal also to the net rate of interest."[3] The demand for money depends upon the rate of interest! The stage is set for Mr. Keynes.

[2] Marshall, *Money, Credit, and Commerce*, p. 257.

[3] Lavington, *English Capital Market*, 1921, p. 30. See also Pigou, "The Exchange-value of Legal-tender Money," in *Essays in Applied Economics*, 1922, pp. 179–181.

As against the three equations of the classical theory,

$$M = kI, \quad I_x = C(i), \quad I_x = S(i, I),$$

Mr. Keynes begins with three equations,

$$M = L(i), \quad I_x = C(i), \quad I_x = S(I).$$

These differ from the classical equations in two ways. On the one hand, the demand for money is conceived as depending upon the rate of interest (Liquidity Preference). On the other hand, any possible influence of the rate of interest on the amount saved out of a given income is neglected. Although it means that the third equation becomes the multiplier equation, which performs such queer tricks, nevertheless this second amendment is a mere simplification, and ultimately insignificant.[4] It is the liquidity preference doctrine which is vital.

For it is now the rate of interest, not income, which is determined by the quantity of money. The rate of interest set against the schedule of the marginal efficiency of capital determines the value of investment; that determines income by the multiplier. Then the volume of employment (at given wage-rates) is determined by the value of investment and of income which is not saved but spent upon consumption goods.

It is this system of equations which yields the startling conclusion, that an increase in the inducement to invest, or in the propensity to consume, will not tend to raise the rate of interest, but only to increase employment. In spite of this, however, and in spite of the fact that quite a large part of the argument runs in terms of this system, and this system alone, *it is not the General Theory.* We may call it, if we like, Mr. Keynes' *special theory.* The General Theory is something appreciably more orthodox.

Like Lavington and Professor Pigou, Mr. Keynes does not in the end believe that the demand for money can be determined by one variable alone—not even the rate of interest. He lays more stress on it than they did, but neither for him nor for them can it be the only variable to be considered. The dependence of the demand for money on interest does not, in the end, do more than qualify the old de-

[4] This can be readily seen if we consider the equations

$$M = kI, \quad I_x = C(i), \quad I_x = S(I),$$

which embody Mr. Keynes' second amendment without his first. The third equation is already the multiplier equation, but the multiplier is shorn of his wings. For since I still depends only on M, I_x now depends only on M, and it is impossible to increase investment without increasing the willingness to save or the quantity of money. The system thus generated is therefore identical with that which, a few years ago, used to be called the "Treasury View." But Liquidity Preference transports us from the "Treasury View" to the "General Theory of Employment."

pendence on income. However much stress we lay upon the "speculative motive," the "transactions" motive must always come in as well.

Consequently we have for the General Theory

$$M = L(I, i), \quad I_x = C(i), \quad I_x = S(I).$$

With this revision, Mr. Keynes takes a big step back to Marshallian orthodoxy, and his theory becomes hard to distinguish from the revised and qualified Marshallian theories, which, as we have seen, are not new. Is there really any difference between them, or is the whole thing a sham fight? Let us have recourse to a diagram (Figure 1).

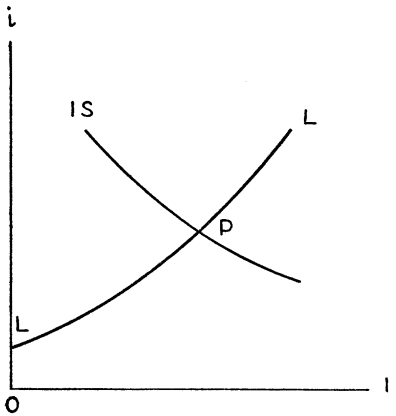

FIGURE 1

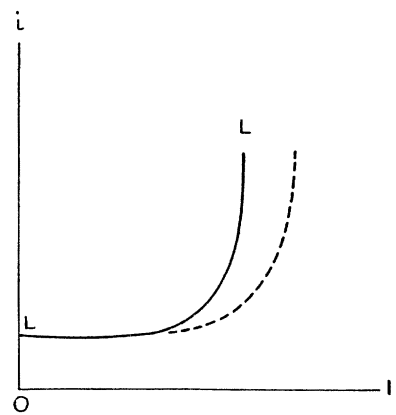

FIGURE 2

Against a given quantity of money, the first equation, $M = L(I, i)$, gives us a relation between Income (I) and the rate of interest (i). This can be drawn out as a curve (LL) which will slope upwards, since an increase in income tends to raise the demand for money, and an increase in the rate of interest tends to lower it. Further, the second two equations taken together give us another relation between Income and interest. (The marginal-efficiency-of-capital schedule determines the value of investment at any given rate of interest, and the multiplier tells us what level of income will be necessary to make savings equal to that value of investment.) The curve IS can therefore be drawn showing the relation between Income and interest which must be maintained in order to make saving equal to investment.

Income and the rate of interest are now determined together at P, the point of intersection of the curves LL and IS. They are determined together; just as price and output are determined together in the modern theory of demand and supply. Indeed, Mr. Keynes' innovation is closely parallel, in this respect, to the innovation of the marginalists.

The quantity theory tries to determine income without interest, just as the labour theory of value tried to determine price without output; each has to give place to a theory recognising a higher degree of interdependence.

III

But if this is the real "General Theory," how does Mr. Keynes come to make his remarks about an increase in the inducement to invest not raising the rate of interest? It would appear from our diagram that a rise in the marginal-efficiency-of-capital schedule must raise the curve IS; and, therefore, although it will raise Income and employment, it will also raise the rate of interest.

This brings us to what, from many points of view, is the most important thing in Mr. Keynes' book. It is not only possible to show that a given supply of money determines a certain relation between Income and interest (which we have expressed by the curve LL); it is also possible to say something about the shape of the curve. It will probably tend to be nearly horizontal on the left, and nearly vertical on the right. This is because there is (1) some minimum below which the rate of interest is unlikely to go, and (though Mr. Keynes does not stress this) there is (2) a maximum to the level of income which can possibly be financed with a given amount of money. If we like we can think of the curve as approaching these limits asymptotically (Figure 2).

Therefore, if the curve IS lies well to the right (either because of a strong inducement to invest or a strong propensity to consume), P will lie upon that part of the curve which is decidedly upward sloping, and the classical theory will be a good approximation, needing no more than the qualification which it has in fact received at the hands of the later Marshallians. An increase in the inducement to invest will raise the rate of interest, as in the classical theory, but it will also have some subsidiary effect in raising income, and therefore employment as well. (Mr. Keynes in 1936 is not the first Cambridge economist to have a temperate faith in Public Works.) But if the point P lies to the left of the LL curve, then the *special* form of Mr. Keynes' theory becomes valid. A rise in the schedule of the marginal efficiency of capital only increases employment, and does not raise the rate of interest at all. We are completely out of touch with the classical world.

The demonstration of this minimum is thus of central importance. It is so important that I shall venture to paraphrase the proof, setting it out in a rather different way from that adopted by Mr. Keynes.[5]

If the costs of holding money can be neglected, it will always be

[5] Keynes, *General Theory*, pp. 201–202.

profitable to hold money rather than lend it out, if the rate of interest is not greater than zero. Consequently the rate of interest must always be positive. In an extreme case, the shortest short-term rate may perhaps be nearly zero. But if so, the long-term rate must lie above it, for the long rate has to allow for the risk that the short rate may rise during the currency of the loan, and it should be observed that the short rate can only rise, it cannot fall.[6] This does not only mean that the long rate must be a sort of average of the probable short rates over its duration, and that this average must lie above the current short rate. There is also the more important risk to be considered, that the lender on long term may desire to have cash before the agreed date of repayment, and then, if the short rate has risen meanwhile, he may be involved in a substantial capital loss. It is this last risk which provides Mr. Keynes' "speculative motive" and which ensures that the rate for loans of indefinite duration (which he always has in mind as *the* rate of interest) cannot fall very near zero.[7]

It should be observed that this minimum to the rate of interest applies not only to one curve LL (drawn to correspond to a particular quantity of money) but to any such curve. If the supply of money is increased, the curve LL moves to the right (as the dotted curve in Figure 2), but the horizontal parts of the curve are almost the same. Therefore, again, it is this doldrum to the left of the diagram which upsets the classical theory. If IS lies to the right, then we can indeed increase employment by increasing the quantity of money; but if IS lies to the left, we cannot do so; merely monetary means will not force down the rate of interest any further.

So the General Theory of Employment is the Economics of Depression.

[6] It is just conceivable that people might become so used to the idea of very low short rates that they would not be much impressed by this risk; but it is very unlikely. For the short rate may rise, either because trade improves, and income expands; or because trade gets worse, and the desire for liquidity increases. I doubt whether a monetary system so elastic as to rule out both of these possibilities is really thinkable.

[7] Nevertheless something more than the "speculative motive" is needed to account for the system of interest rates. The shortest of all short rates must equal the relative valuation, at the margin, of money and such a bill; and the bill stands at a discount mainly because of the "convenience and security" of holding money—the inconvenience which may possibly be caused by not having cash immediately available. It is the chance that you may want to discount the bill which matters, not the chance that you will then have to discount it on unfavourable terms. The "precautionary motive," not the "speculative motive," is here dominant. But the prospective terms of rediscounting are vital, when it comes to the *difference* between short and long rates.

IV

In order to elucidate the relation between Mr. Keynes and the "Classics," we have invented a little apparatus. It does not appear that we have exhausted the uses of that apparatus, so let us conclude by giving it a little run on its own.

With that apparatus at our disposal, we are no longer obliged to make certain simplifications which Mr. Keynes makes in his exposition. We can reinsert the missing i in the third equation, and allow for any possible effect of the rate of interest upon saving; and, what is much more important, we can call in question the sole dependence of investment upon the rate of interest, which looks rather suspicious in the second equation. Mathematical elegance would suggest that we ought to have I and i in all three equations, if the theory is to be really General. Why not have them there like this:

$$M = L(I, i), \quad I_x = C(I, i), \quad I_x = S(I, i)?$$

Once we raise the question of Income in the second equation, it is clear that it has a very good claim to be inserted. Mr. Keynes is in fact only enabled to leave it out at all plausibly by his device of measuring everything in "wage-units," which means that he allows for changes in the marginal-efficiency-of-capital schedule when there is a change in the level of money wages, but that other changes in Income are deemed not to affect the curve, or at least not in the same immediate manner. But why draw this distinction? Surely there is every reason to suppose that an increase in the demand for consumers' goods, arising from an increase in employment, will often directly stimulate an increase in investment, at least as soon as an expectation develops that the increased demand will continue. If this is so, we ought to include I in the second equation, though it must be confessed that the effect of I on the marginal efficiency of capital will be fitful and irregular.

The Generalized General Theory can then be set out in this way. Assume first of all a given total money Income. Draw a curve CC showing the marginal efficiency of capital (in money terms) at that given Income; a curve SS showing the supply curve of saving at that *given* Income (Figure 3). Their intersection will determine the rate of interest which makes savings equal to investment at that level of income. This we may call the "investment rate."

If Income rises, the curve SS will move to the right; probably CC will move to the right too. If SS moves more than CC, the investment rate of interest will fall; if CC more than SS, it will rise. (How much it rises and falls, however, depends upon the elasticities of the CC and SS curves.)

The IS curve (drawn on a separate diagram) now shows the relation

between Income and the corresponding investment rate of interest. It has to be confronted (as in our earlier constructions) with an *LL* curve showing the relation between Income and the "money" rate of interest; only we can now generalise our *LL* curve a little. Instead of assuming, as before, that the supply of money is given, we can assume that there is a given monetary system—that up to a point, but only up to a point, monetary authorities will prefer to create new money rather than allow interest rates to rise. Such a generalised *LL* curve will then slope upwards only gradually—the elasticity of the curve depending on the elasticity of the monetary system (in the ordinary monetary sense).

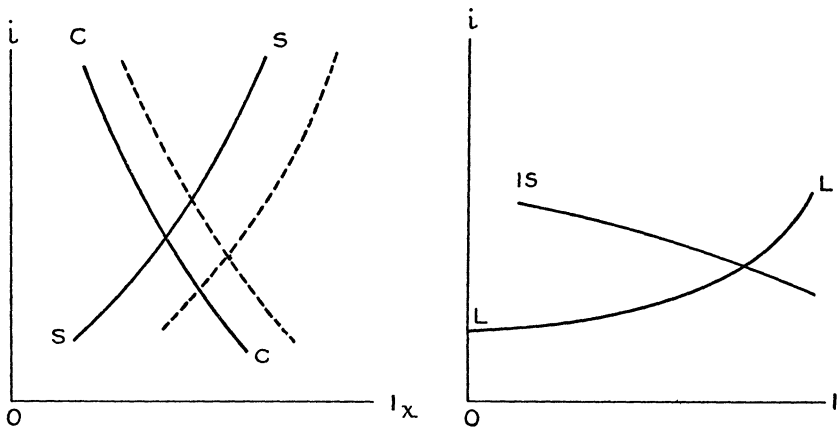

FIGURE 3

As before, Income and interest are determined where the *IS* and *LL* curves intersect—where the investment rate of interest equals the money rate. Any change in the inducement to invest or the propensity to consume will shift the *IS* curve; any change in liquidity preference or monetary policy will shift the *LL* curve. If, as the result of such a change, the investment rate is raised above the money rate, Income will tend to rise; in the opposite case, Income will tend to fall; the extent to which Income rises or falls depends on the elasticities of the curves.[8]

[8] Since $C(I, i) = S(I, i)$, $\dfrac{dI}{di} = -\dfrac{\partial S/\partial i - \partial C/\partial i}{\partial S/\partial I - \partial C/\partial I}$.

The savings investment market will not be stable unless $\partial S/\partial i + (-\partial C/\partial i)$ is positive. I think we may assume that this condition is fulfilled.

If $\partial S/\partial i$ is positive, $\partial C/\partial i$ negative, $\partial S/\partial I$ and $\partial C/\partial I$ positive (the most probable state of affairs), we can say that the *IS* curve will be more elastic, the

When generalised in this way, Mr. Keynes' theory begins to look very like Wicksell's; this is of course hardly surprising.[9] There is indeed one special case where it fits Wicksell's construction absolutely. If there is "full employment" in the sense that any rise in Income immediately calls forth a rise in money wage rates; then it is *possible* that the CC and SS curves may be moved to the right to exactly the same extent, so that IS is horizontal. (I say possible, because it is not unlikely, in fact, that the rise in the wage level may create a presumption that wages will rise again later on; if so, CC will probably be shifted more than SS, so that IS will be upward sloping.) However that may be, if IS is horizontal, we do have a perfectly Wicksellian construction;[10] the investment rate becomes Wicksell's *natural rate*, for in this case it may be thought of as determined by real causes; if there is a perfectly elastic monetary system, and the money rate is fixed below the natural rate, there is cumulative inflation; cumulative deflation if it is fixed above.

This, however, is now seen to be only one special case; we can use our construction to harbour much wider possibilities. If there is a great deal of unemployment, it is very likely that $\partial C/\partial I$ will be quite small; in that case IS can be relied upon to slope downwards. This is the sort of Slump Economics with which Mr. Keynes is largely concerned. But one cannot escape the impression that there may be other conditions when expectations are tinder, when a slight inflationary tendency lights them up very easily. Then $\partial C/\partial I$ may be large and an increase in Income tend to *raise* the investment rate of interest. In these circumstances, the situation is unstable at *any* given money rate; it is only an imperfectly elastic monetary system—a rising LL curve—that can prevent the situation getting out of hand altogether.

These, then, are a few of the things we can get out of our skeleton apparatus. But even if it may claim to be a slight extension of Mr. Keynes' similar skeleton, it remains a terribly rough and ready sort of affair. In particular, the concept of "Income" is worked monstrously hard; most of our curves are not really determinate unless something is said about the distribution of Income as well as its magnitude. Indeed, what they express is something like a relation between the price-system and the system of interest rates; and you cannot get that into a curve. Further, all sorts of questions about depreciation have been neglected; and all sorts of questions about the timing of the processes under consideration.

---

greater the elasticities of the CC and SS curves, and the larger is $\partial C/\partial I$ relatively to $\partial S/\partial I$. When $\partial C/\partial I > \partial S/\partial I$, the IS curve is upward sloping.

[9] Cf. Keynes, *General Theory*, p. 242.

[10] Cf. Myrdal, "Gleichgewichtsbegriff," in *Beiträge zur Geldtheorie*, ed. Hayek.

The *General Theory of Employment* is a useful book; but it is neither the beginning nor the end of Dynamic Economics.

J. R. HICKS

Gonville and Caius College
Cambridge