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KEYNES, SRAFFA AND THE EMERGENCE OF THE *GENERAL THEORY*: SOME THOUGHTS.

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KEYNES, SRAFFA AND THE EMERGENCE OF THE *GENERAL THEORY*: SOME THOUGHTS

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ABSTRACT

This note looks into the issue of whether or not Sraffa had any significant influence on Keynes's thinking in the period of preparation of the *General Theory*. Questioning the view recently expressed by Pasinetti (2007), we suggest there is reason to surmise that Sraffa may have pointed Keynes to a way of escape from the traditional conception of the rate of interest, a line of thought which Keynes developed into the liquidity preference explanation of interest on money.

In his important new study focusing on Keynes, the Cambridge Keynesians and the incompleteness of the Keynesian Revolution, Luigi Pasinetti (2007) considers how the interests and contributions of the younger generation of economists of 1930s Cambridge connected with Keynes's own pioneering work. Attention is given to the concerns and writings of Richard Kahn, Joan Robinson, Nicholas Kaldor, Richard Goodwin and Piero Sraffa. This note picks up on a comment made by Pasinetti regarding, as he sees it, a mutual lack of influence of Keynes and Sraffa on each other's economics.

Pasinetti's view

In discussing the relationship between Keynes and Sraffa, Pasinetti (2007, p.164) concludes (unsurprisingly) that he finds it 'difficult to think of problems on which one might trace a direct influence of Keynes on the development of Sraffa's economic thought'. And, as regards any influence of Sraffa on Keynes he is similarly doubtful:

[1] Roy is grateful to Eric Rahim for constructive comment and helpful discussion.

> [Keynes] was passing from the *Treatise* . . . to the *General Theory*. If we consider the most important among Keynes's contributions – the principle of effective demand, the macro analysis of consumption, the crucial role of investments and of expectations, the relationship between investment and savings, the liquidity preference function, etc – nothing of this suggests that Sraffa may have had any significant role in their development. The only parts of the *General Theory* that may be directly linked up with Sraffa's ideas are Chapter 16 ('Sundry Observations on the Nature of Capital') and the hints at the 'own rates of interest', explicitly attributed to Sraffa by Keynes. Yet these are secondary aspects, within the theoretical context provided by the *General Theory* or with reference to its immediate policy implications.
>
> It seems reasonable to conclude that it is difficult to find clear evidence supporting the view of relevant influence, on scientific grounds, of Keynes on Sraffa, and at the same time it is equally difficult to find clear evidence of a substantial influence of Sraffa on Keynes.

While we have no difficulty with the suggestion that Keynes had no discernible impact on Sraffa's economics, we are inclined to think it rather less evident that Sraffa had no significant influence on the analysis of the *General Theory*. We believe it may be worthwhile, as regards that question, to have a brief look at what the available evidence reveals about the development of Keynes's thinking, especially with respect to the rate of interest, in the crucial period immediately after publication of the *Treatise on Money.*

Keynes provoked by Hayek's review of the *Treatise*

We go back to Hayek's review (first part, *Economica*, August 1931) of the *Treatise* and the spat between Hayek and Keynes which occasioned a, possibly significant, intervention by Sraffa.

Keynes was unhappy with Hayek's review[2] and responded pretty sharply in print. ['The Pure Theory of Money, a Reply to Dr Hayek', *Economica,* (November 1931)].

It is evident that Keynes had difficulty in grasping Hayek's theory, finding it incomprehensibly muddled. His discussion of Hayek's views drifts, as he says, into a review of *Prices and Production*. Keynes is very blunt:

> The book, as it stands, seems to me to be one of the most frightful muddles I have ever read, with scarcely a sound proposition in it beginning with page 45, and yet it remains a book of some interest, which is likely to leave its mark on the mind of the reader. It is an extraordinary example of how, starting with a mistake, a remorseless logician can end up in Bedlam. Yet Dr Hayek has seen a vision, and though when he woke up he has made nonsense of his story by giving the wrong names to the objects which occur in it, his Khubla Khan is not without inspiration and must set the reader thinking with the germ of an idea in his head.

Nevertheless Keynes allows that there is something in common between their conceptions – namely the Wicksellian/Marshallian theory of macroeconomic fluctuations as resulting from a discrepancy between the 'natural' and the 'money' rates of interest. Keynes accepts Hayek's comment that he does not explain (amongst other things) 'the factors which determine the natural rate of interest' and agrees with Hayek that 'a clear account of the factors determining the natural rate of interest ought to have a place in a completed *Treatise on Money*, and that it is lacking in mine . . .' Note that *at this point Keynes, evidently still thinking in terms of the model of the Treatise, has no difficulty with the concept of the natural rate.*

There follows through December 1931 and January 1932 an extended correspondence (Keynes, 1973a, pp.257-266) between Keynes and Hayek with Keynes, very politely, asking for elucidation of certain points and Hayek replying at length, but failing to clarify matters to

[2] Keynes complained that 'Hayek has not read the book with that measure of 'good will' which an author is entitled to expect of a reader. Until he can do so, he will not see what I mean or know whether I am right. He evidently has a passion which leads him to pick on me, but I am left wondering what this passion is.'
(Keynes, 1973a, p.243)

Keynes's satisfaction. Keynes remains unsure of the precise nature of Hayek's theory. Finally, giving up on further enlightenment through correspondence, he writes to Hayek (11 February 1932),

> . . . I am left with the feeling that I very seldom know, when I read your stuff, exactly what simplified assumptions you introduce or what effect it would have on the argument if these simplified assumptions were to be removed. . . . Going back to the point at which our correspondence started, I am left where I began, namely in doubt as to just what you mean by voluntary saving and forced saving as applied to the actual world we live in;

Just before writing the above, Keynes, referring to his frustrating discussion with Hayek, had sent (01 February 1932) the following note to Piero Sraffa and Richard Kahn (Keynes, 1973a, p.265):

> What is the next move? I feel that the abyss yawns – and so do I. Yet I can't help feeling that there is something interesting in it.

At this point Sraffa comes to the rescue. His article 'Dr Hayek on Money and Capital' was published in the *EJ* for March 1932.

Sraffa on Hayek

On reading Lawlor's (2006) exposition of Sraffa's devastating critique of Hayek it does seem that Sraffa (reputedly with the advantage of greater familiarity with Austrian economics) had considerably more success than Keynes in penetrating the obscurities of Hayek's *Prices and Production*, and was able to reveal both the intended sense of the Hayek story and the deficiencies of the analysis. Sraffa argued that, as an account of the working of a monetary economy, Hayek's theory was fundamentally inadequate, as the author, having by hidden assumption effectively neutralised money, had so confused himself that he failed to recognise the

real source of the disturbances he was depicting. [‘As Voltaire says,’You can kill a flock of sheep with incantations and a little arsenic.’’]

What, however, is important for our purpose is that, in the course of his critique, Sraffa introduced the concept of ‘commodity rates of interest’ Recognition of the existence within the system of numerous commodity or ‘natural’ rates of interest completely undermines the neoclassical interpretation of macroeconomic fluctuations as symptomatic of a difference having emerged between a unique ‘*natural’* rate of interest – the supposed role of which was to equate saving and investment – and the *‘money’* or actual ‘market’ rate as institutionally set by the banking system. If, as Sraffa revealed, there exist as many natural rates as commodities traded, and in disequilibrium conditions these may all be different, it makes no sense to recommend - as the means of eliminating disequilibrium - that the banks should set their lending rate equal to a notionally unique, equilibrium natural rate. Furthermore, from this perspective, the rate of interest on money is seen to be just one of many interest rates (these being the price of delayed delivery or forward selling of anything in which forward trading is possible) - not essentially different in character from any other rate of interest. This view is, of course, sharply at odds with the conventional understanding of the rate of interest on money as being merely a reflection – frequently imperfect – of the unique natural rate determined by ‘productivity’ and ‘thrift’.

The emergence of the *General Theory*

Did this discovery by Sraffa of a new concept of interest contribute to Keynes’s intellectual progress from the *Treatise* to the *General Theory*? His views on interest certainly altered soon after the Hayek interlude. We have noted that in late 1931, when responding to Hayek’s review of the *Treatise,* Keynes was apparently still quite comfortable with the traditional notion of the existence of a unique natural rate with which the money rate of interest needed to accord to ensure that savings passed to investment. Yet it is clear that within a year, at least by autumn 1932, when he resumed his university lectures, Keynes had formulated the essential, and fundamentally revolutionary, structure of the *General Theory*.

Keynes later described to Harrod (Keynes, 1973b, p.85) how the key elements of his new 'monetary theory of production' (i.e. the general theory) fell into place:

> To me, the most extraordinary thing regarded historically, is the complete disappearance of the theory of demand and supply for output as a whole, i.e. the theory of employment, *after* it had been for a quarter of a century the most discussed thing in economics. One of the most important questions for me, after my *Treatise on Money* had been published, was suddenly realising this. It was only after I had enunciated to myself the psychological law that, when income increases, the gap between income and consumption will increase, - a conclusion of vast importance to my own thinking but not apparently, expressed just like this, to anyone else's. Then, appreciably later, came the notion of interest as being the meaning of liquidity preference, which became quite clear to my mind the moment I thought of it. And, last of all, after an immense lot of muddling and many drafts, the proper definition of the marginal efficiency of capital linked one thing up with another.

From the surviving materials reproduced in the *Collected Writings* it is clear just how quickly Keynes's thinking developed. The question is - can we say anything about the role of the Sraffa paper here? Let us see first of all what did happen.

The starting point: interest rates in the *Treatise on Money*

We may, to provide a point of reference, begin my noting Keynes's observations in the *Treatise* on the role of the rate of interest in relation to variations in prices and employment. In Book II, Chapter 12, p.165 he gives "A Summary of the Argument"; thus:

> If the banking system controls the volume of credit in such a way that savings are equal to the value of new investment, then the average price level of output as a whole is stable and corresponds to the rate of remuneration of the factors of production. If the terms of credit are easier than this equilibrium level, prices will

> rise, profits will be made, wealth will increase faster than savings as a result of the incomes of the public being worth less . . . until something happens to bring the actual terms of credit and their equilibrium level nearer together. And if the terms of credit are stiffer than the equilibrium level, prices will fall, losses will be made, wealth will increase slower than savings by the extent of the losses, unemployment will ensue, and there will be a pressure towards a reduction of earnings of the factors of production – until something happens to bring the actual terms of credit and their equilibrium level nearer together.

In the following section, "The 'Modus Operandi' of Bank Rate", Keynes (1930, I, pp.176-177) elaborates on the theoretical underpinnings of the above diagnosis.

> Wicksell conceives of the existence of a 'natural rate of interest', which he defines as being the rate which is 'neutral' in its effect on the prices of goods, tending neither to raise nor to lower them, and adds that this must be the same rate as would obtain if in a non-monetary economy all lending was in the form of actual materials. It follows that if the actual rate of interest is lower than this prices will have a rising tendency, and conversely if the rate is higher. It follows, further, that so long as the money rate of interest is kept below the natural rate of interest, prices will continue to rise – and without limit.

Then he adds,

> Whilst Wicksell's expressions cannot be justified as they stand and must seem unconvincing . . . without further development, they can be interpreted in close accord with the fundamental equation of this treatise. For if we define Wicksell's natural rate of interest as the rate at which saving and the value of investment are in equilibrium . . . then it is true that, so long as the money rate of interest is held at such a level that the value of investment exceeds saving, there will be a rise in the price level of output as a whole above its cost of production, which in turn will stimulate entrepreneurs to bid up the rates of earnings above their previous level, and this

> upward tendency will continue indefinitely so long as the supply of money continues to be such as to enable the money rate to be held below the natural rate as thus defined.

We can therefore take it that, at the time of publishing the *Treatise*, Keynes subscribed, without hesitation, to the doctrine that the role of the ('natural') rate of interest was to equate savings and investment, and that the key practical rule for macroeconomic stability was that the authorities should keep the actual or market rate of interest - the rate to which agents responded – closely in view, and intervene as might be required to maintain its equality with the (notional) natural rate. Note too, that while this conception allows for the occurrence of unemployment in conditions of disequilibrium – occasioned by inequality of the market and natural rates – the focus of the analysis is on the determination of the price level, with the tacit presumption that the desired equality of the market and natural rates implied not only price stability but a normal full-employment level of activity.

Steps towards the *General Theory*, 1931-32

Let us now consider some remarks by Keynes, in the period immediately following publication of the *Treatise*, on interest rates, prices and employment.

The first of these come from three lectures Keynes gave in Chicago, under the general title of 'An Economic Analysis of Unemployment', in June 1931. (Keynes, 1973a, pp.343-367) This was after the period of operation of the Cambridge 'circus' but before Hayek's provoking review of the *Treatise* had appeared in *Economica.*

While unemployment seems to have come more to the fore as the focus of attention, and although Keynes seems to have lost faith in the reliability of the money rate-natural rate equilibrating mechanism, he apparently still holds to the conventional idea of the nature of and relationship between the natural and market rates of interest.

Keynes stresses his belief that the cause of the current 'business losses, reduction of output and unemployment' is the recent collapse of investment spending, and that recovery can only come via restoration of an adequate level of investment. He then remarks:

> In the past it has been usual to believe that there was some preordained harmony by which saving and investment were naturally equal. If we intrusted our savings to a bank, it used to be said, the bank will of course make use of them, and they will duly find their way into industry and investment. But unfortunately this is not so. I venture to say with certainty that it is not so. And it is out of the disequilibrium of savings and investment, and out of nothing else, that the fluctuations of profits, of output, and of employment are generated.

A notion of the economy getting stuck in a state of unemployment is mooted:

> Now there is a reason for expecting an equilibrium point of decline to be reached. A given deficiency of investment causes a given decline of profit. A given decline of profit causes a given decline of output. Unless there is a constantly increasing deficiency of investment, there is eventually reached, therefore, a sufficiently low level of output which represents a kind of spurious equilibrium.

The point is made that dissaving, both by households and by government, will tend to check the tendency to an unlimited cumulative fall in income and employment; there is yet though no clear conception of the multiplier process. Keynes concludes:

> There can, therefore, I argue, be no secure basis for a return to an equilibrium of prosperity except a recovery of fixed investment to a level commensurate with that of the national savings in prosperous times. . . . The problem of recovery is, therefore, a problem of re-establishing the volume of investment. . . . The problem resolves itself, therefore, into the question as to what means we can adopt to increase the volume of investment. When I have said this, I have, strictly speaking, said all that an economist as such is entitled to say. What remains is essentially a technical banking problem.

> The practical means by which investment can be increased is, or ought to be, the bankers' business, and pre-eminently the business of the central banker.

After commenting that perhaps not much can be done directly to boost business confidence, and referring favourably to a government programme of public works, Keynes arrives at the strategy of engineering a reduction in the long-term rate of interest. Here he is 'pessimistic as to an early return to normal prosperity'. A lower interest rate may not make much difference when confidence is at 'its lowest ebb', and investment in plant and equipment is not primarily determined by the rate of interest, though the rate of interest is important with respect to housing and utilities, as for example, in the case of railway electrification. Keynes's conclusion to this discussion suggests both that he is still thinking in terms of the conceptual framework of the *Treatise* – i.e. supposing the idea of the market rate-natural rate mechanism to be a valid one – but at the same time having serious reservations about the efficiency of the mechanism

> As I look at it, indeed, the task of adjusting the long-term rate of interest to the technical possibilities of our age so that the demand for new capital is as nearly as possible equal to the community's current volume of savings must be the prime task of financial statesmanship. It may not be easy and a large change may be needed, but there is no other way out.

Finally, let us move forward to notes – for a new book, and for Cambridge lectures - prepared by Keynes subsequent to his Chicago lectures, probably in the spring and summer of 1932, but certainly before the beginning of the Michaelmas term in October. (These are reproduced in Keynes, 1973a, pp.381-407) Dates are a bit sparse here, but Keynes, in a letter to Joan Robinson (9 May 1932) (Keynes, 1973a, pp.,377-378) refers to his 'half-forged' weapons. Donald Moggridge (Keynes, 1973a, p.380) comments that Keynes, at that point, 'was hard at work refashioning his approach' By 18 September 1932 he evidently felt he was making good progress in getting the new ideas into shape, writing to Florence Keynes that 'I have written nearly a third of my new book on monetary theory' (Keynes, 1973a, p.380) It will be remembered that the contacts with Hayek, culminating in Sraffa's article, had taken place between autumn 1931 and March 1932.

It may be noted also, as indicated by correspondence with R F Kahn (September, 1931) (Keynes, 1973a, pp.373-375) that Keynes had by that date got the hang of the multiplier relationship. That in itself was undoubtedly important with respect to his changing understanding of the nature and role of the rate of interest.

What are evidently draft chapters for the book to supercede the *Treatise* show the changes that, by autumn 1932, had taken place in Keynes's thinking; he continued, of course, to identify fluctuations in investment spending as the principal determinant of variations in output and employment.

Keynes, now appreciating the operation of the multiplier process, makes the point quite crisply that, in a downturn, private sector expenditure will tend to decline at a lesser rate than income receipts, so that

> We may reasonably rely upon a point of equilibrium being reached eventually at which . . . there is no reason for any further decline in the short period. . . . The reader will notice that, apart from factors of which we have not yet taken account, there is no presumption whatever that the equilibrium output will be anywhere near the optimum output. The essence of the above process is that the real income of the community has to be forced down to a level at which the rate of saving is not so excessive relatively to investment at the current rate of interest as to produce a crescendo of business losses and the closing down of plant.

Then, as to 'the factors not yet taken into account': the first of these – the possibility that downward adjustment of money wages would be helpful - is discussed and dismissed: 'I conclude, on the balance of considerations, that there is no presumption that an all-round reduction of the variable costs of production will prove favourable to the volume of employment'. The second factor is the question of the 'adjustability of the rate of interest'. On this issue, Keynes is equally definite and equally negative.

> The 'automatic' forces, upon which it has been customary to rely in the long run, can be analysed . . . as follows. On the one hand we have the fact that, as output, and consequently the community's real income, declines, the proportion of earnings which is saved will also decline. On the other hand as output and prices decline, the proportion of the stock of money to income will (under some, but not all, monetary systems) tend to increase. This growing relative abundance of money will, unless the general desire for liquidity relatively to income is capable of increasing without limit, lead in due course to a decline in the rate of interest. And, although the decline in the rate of interest may be prevented for a time by various 'bearish' factors from exercising a favourable influence on investment, sooner or later it will do so. Thus we may expect to reach a point at which, with saving declining and investment increasing, the turn of the tide comes, whereupon the recovery will feed on itself just as the depression had fed on itself, real and money incomes will rise and savings will rise thus supporting the higher level of investment – so the argument runs – until we are back again at optimum output. . . .
>
> The point at which I withdraw reliance upon the above course of events appears when the recovery in output leads to an increase of savings. For there is no safeguard against savings increasing faster than they can be absorbed by investment, except a monetary policy deliberately aimed at making a rate of interest sufficiently stimulating to investment; and *under an 'automatic' system there is no certainty, or even possibility, of this.* [Emphasis added.]

The notion of a natural interest rate equilibrating mechanism has disappeared from Keynes's thinking – it is not just that a supposed mechanism is 'sticky' – there is 'no possibility' of automatic adjustment in that way – the mechanism simply doesn't exist. Autonomous fluctuations of investment demand can result in the establishment of a low-employment equilibrium; forget the idea of interest changes ensuring equality of saving and investment at a satisfactory level of activity - the required balance of saving and investment is achieved through a fall in income which reduces the level of savings to the new low level of investment. Note finally, that any reduction of the rate of interest that does occur (provided money is not

endogenous) is explained in terms of changes in the supply of money relative to liquidity preference (the demand for money) – i.e., the explanation is as in the *General Theory*.

Additional evidence that, by late 1932, Keynes had arrived at the theory of money and interest that would be expounded in the *General Theory* derives from two further draft chapters, which, in Moggridge's judgement (Keynes, 1973a, p.380) were composed slightly later than the passages just quoted, but still during 1932. It will suffice to quote two instances from these chapters.

(1) Under the heading "Parameters of a Monetary Economy", we find (Keynes, 1973a, pp.397-398):

> We have begun in the preceding chapter [draft no longer available] with the rate of liquidity-preference (A) which tells us what ρ, the rate of interest exclusive of risk-allowance, will be, given to [the ?] quantity of money so that
>
> $$\rho = A(M) .$$

(2) And (Keynes, 1973a, pp.399-400), the statement that

> We have found that the price complex of assets is given by their anticipated productivity taken in conjunction with the market rate of interest. This – I hope the reader will feel – is quite natural and as it should be. Moreover, *since on my view the market rate of interest is a thing in itself, dependent on liquidity preference and the quantity of money,* there is no longer any circularity in the method of valuing assets, *such as exists so long as the rate of interest is supposed to be in some way the same thing as, or directly arising out of, the productivity of assets.* (Emphases added)

Clarke (1988, p.263) relates how 'liquidity preference' was finally revealed to the public: 'In Keynes's university lecture of 31 October 1932 the new theory of interest was finally unveiled.

As Bryce[3] recorded it, Keynes's exposition led up to a triumphant conclusion 'in itself rate of interest is an expression of *liquidity preference*.''

It is clear from the quoted passages that, no more than two years after the publication of the *Treatise*, Keynes's thinking had completely changed. By the latter part of 1932 all three key components of the general theory were in place. (1) Recognition of the possibility of equilibrium at less than full employment - for the reason that, if the balance of the circular flow of income and expenditure is upset by a fall in investment spending, equality of planned investment and saving is re-established through a reduction of output and income sufficient to reduce saving to equality with the reduced volume of investment (the multiplier process); (2) the rate of interest is identified as a monetary phenomenon - 'the reward for parting with liquidity' – determined by liquidity preference relative to existing asset stocks; and (3) the value of assets, such as new capital goods, is obtained by discounting prospective returns at the going rate of interest (in other words, the rate of interest is something distinct from the 'marginal efficiency of capital', and the relation between the two rates is critical in determining the volume of investment and the equilibrium level of income).

The question to which we are seeking an answer is whether or not the propositions formulated by Sraffa in his savaging of Hayek could have played any significant part in shaping the way in which Keynes's thinking developed over the ensuing months. But before we suggest what we think to be a possible, indeed probable, link from Sraffa to Keynes, we must consider an alternative explanation of the origin of liquidity preference, from which perspective Sraffa does not come into the picture.

It is noteworthy that one can search the whole two-volume text of the *Treatise* without coming across any recognition of interest on money as a *monetary* phenomenon. In the *Treatise* there is really no proper discussion of the nature of 'interest' – it is simply taken as understood that interest (the 'natural' rate) is a 'real' price representing the terms of exchange of consumption now against consumption later as determined by 'productivity' and 'thrift'. (Essentially, although

[3] Cited by Clarke (1988) as 'Bryce notes, 31 Oct., 1932 (emphasis in original)'. R.B. Bryce was a Canadian graduate (in engineering) who attended Keynes's lectures in 1932; a transcript of the notes Bryce made at these lectures, prepared by T.K.Rymes, is held in the Keynes Papers at King's College, Cambridge.

interest is calculated and paid in money, the value of 'natural rate' has nothing to do with the particular properties of money but everything to do with the properties of those physical commodities not consumed and those used for investment.) From that conventional perspective the market rate is no more than the real world representative of the notional natural rate – a representative which ideally should exactly reflect the natural rate, but which in practice, on account of institutional factors, is prone to temporary divergences from its proper value. In other words the market rate is not really recognised as 'a thing in itself'[4], as something truly distinct from the return on capital. It is not to be wondered therefore, that the traditional analysis offers no specific theory of the nature and determination of the money rate as an entity apart from the natural rate. All that is offered are explanations, in terms of institutional factors – the behaviour of the banks, stock market speculation – as to why the actual rate in the market may deviate from its 'proper' value.

Nevertheless it has been pointed out that traditional (pre-*General Theory*) monetary discussion, in the *Treatise* and elsewhere, was not lacking instances which, with hindsight, seem to call out for interpretation in terms of liquidity preference. Thus Clarke (1988, pp.263-264),

> It is easy to find earlier adumbrations of the notion of liquidity preference – once one knows what to look for. Virtually any precautionary motive for holding money which an exhaustive treatment of the quantity theory might mention may seem to point in this direction. Here too 'everything is to be found in Marshall'; and the *Treatise's* reflections on bearishness can be read in the same way. Yet at this time – as his exchanges with Robertson before the Macmillan Committee show – Keynes did not make the connection which later struck him as so obvious.

It is somewhat surprising that it is in these 'near-misses' with liquidity preference that Clarke (1988, p.263) thinks he finds the source of Keynes's eventual identification of the concept. Referring to Keynes's account given to Harrod that 'the notion of interest as being the measure of liquidity preference . . . became quite clear in my mind the moment I thought of it', Clark

[4] Keynes's own – revealing – phrase (Keynes, 1973a, p.399)

comments that this recognition was 'like a ripe apple falling off the tree – the fruit of his stale controversy with Robertson over hoarding and bearishness'.

Although it describes a scenario which is undoubtedly possible, we nevertheless find Clarke's interpretation of Keynes's 'revelation on the road to liquidity preference' unconvincing. Certainly it is true that what Keynes has to say in the *Treatise* about market speculation appears closely to foreshadow the account presented in the *General Theory*, but the former fits into a quite different conceptual frame. The analysis of the *Treatise* is concerned with failure of the market rate to adjust in line with autonomous natural rate changes as required to maintain the value of new capital goods at a level consistent with a full-employment volume of investment. It is apparently Clark's suggestion that once the erstwhile standard interpretation of the natural rate as the equilibrator of saving and investment had been undermined by the multiplier concept of equilibrium attained via income changes, Keynes then simply lighted on the hitherto unrecognised notion of liquidity preference as providing a new explanation of the rate of interest. Thus Clarke (1988, p.264): 'The significance of liquidity preference was as *a theory of interest*, once the theory of interest was no longer conceived as equilibrating saving and investment.' [Emphasis in original.]

We think that Clarke may be postulating too much of a sudden jump on Keynes's part. Adoption of the multiplier certainly implied a negative shock to the conventional wisdom regarding the rate of interest, but that shock did not in itself provide an alternative theory: as a barrier to new thinking, the notion of 'the rate of interest' as a *unique* phenomenon, determined by the 'real' forces of 'productivity' and 'thrift' still remained to be overcome. So long as the idea prevailed that there exists but one 'natural' rate – however determined – and that the rate which is actually quoted in the market is essentially a reflection (albeit imperfect) of that unique natural rate, thinking would remain trapped in the 'old' world. The idea of a rate of interest on money, *per se*, as determined on its own terms, and *distinct from*, the conventional conception of interest as ultimately being the price of (in some sense) 'real capital' had still to emerge.

What we are suggesting as a more plausible scenario than Clarke's is that Sraffa's introduction (in his critique of Hayek) of the novel idea of the existence, alongside a money rate of interest, of

as many ‘natural’ or ‘commodity’ rates as there are commodities traded may have indicated to Keynes a way forward. We suggest too that the interval from autumn 1931 (when Keynes grasped the implications of the multiplier) to spring 1932 (when Sraffa’s revolutionary ideas on interest rates appeared) might, just conceivably, correspond to the time lapse to which Keynes referred when explaining that his inspiration with respect to liquidity preference, far from following immediately upon the new understanding of income-expenditure equilibration, only arrived ‘appreciably later’.

But before we comment further on the issue of Sraffa’s possible influence on Keynes’s economics, let us refer to the observations of Lawlor (2006) on the matter.

Lawlor writes (p.240ff)

> As a bridge over the uncharted, and perhaps forever unknown, question of what personal role was played by Sraffa in the eventual form of Chapter 17 of the *General Theory*, we can utilise the thoughts of a Cambridge student of the early thirties, a disciple of Keynes, Adam Smith prizeman and eventually Professor of Economics at the Banaras Hindu University, Mr B P Adarkar. Adarkar’s *The Theory of Monetary Policy* (1935) provides an interesting contemporary survey of the major monetary theories of the thirties and constructive work on the usefulness of this body of theory for practical monetary management.
>
> Besides the fact that Adarkar provides a concise discussion of the complete range of interest rate theory at the time, he forms an important intellectual link in our study by virtue of his knowledge of Keynes’s monetary theory in the transition period from the *Treatise on Money* to the *General Theory*. Keynes’s influence is clearly stated in Adarkar’s preface:
>
> > It will not be difficult for the reader, however, to discern the intellectual genealogy of this effort and he will at once perceive how deeply indebted I am to J.M.Keynes, the leader of monetary

thought, in much that I have to say in the following pages.

(Adarkar, 1935, p.viii)

Adarkar examines carefully Sraffa's critique of Hayek and recognises a (superficial) similarity between Fisher's 'real' rates of interest on commodities and Sraffa's 'commodity' rates, but concludes that the latter is the more useful concept. Then, to quote Lawlor again, Adarkar links up Sraffa's concept with Keynes's discussion in the *Treatise* of forward trading:

> First [Adarkar] mentions that in a risky market the equilibrium position of spot and future prices will not exactly coincide due to the 'cost of hedging'. 'As Keynes has shown (Keynes, 1930, II, pp.127-131), in equilibrium the spot exceeds the forward price, the backwardation amounting to as much as 10% in the case of seasonal crops' (p.43). In the *General Theory*, this normal backwardation is subsumed under one element of his conception of own rates, the liquidity premium. Adarkar further notes that a true reckoning of such rates must take into account 'costs of warehousing, insurance [and] deterioration' of the stocks held over; 'the speculative element' in spot and forward dealings; and the 'current ideas and expectations of businessmen as to the probable course of future production' (p.44). Each of these influences . . . also has a counterpart in Keynes's own-rates framework.

What is the significance of Adarkar's exploration of these issues? What does it imply? Perhaps we may speculate.

We don't think Adarkar's observations necessarily tell us anything *directly* about Keynes's thinking during this 'transition period', but we suggest that the response which Adarkar, a knowledgeable student of Keynes's work, no doubt well in tune with Keynes's own thinking, showed to the concept introduced by Sraffa could well provide an indication of how Keynes himself may have reacted. Sraffa's exposition of his idea of 'commodity' rates was in fairly abstract terms, quite remote from the real world conditions on which Keynes's own monetary thinking and writing were focused; Adarkar immediately sought to apply the Sraffa concept to the real world of trade and finance, which led him to itemise the elements of costs and returns which

actually enter into calculation of the terms on which commodities are offered and purchased for forward delivery. If Keynes responded in the same way, noting Sraffa's new concept of interest, and relating Sraffa's 'commodity rates' to his own familiar handling of the real world phenomena of forward trading – he would have found that certain factors determining the costs of carrying stocks over time (those noted by Adarkar) could very readily be 'slotted into' an extended Sraffian framework to account in more realistic terms for some Sraffa-type commodity rates. The question which would then immediately seem to open up is 'what, comparable to the determinants of these commodity rates, could determine the analogous interest rate on *money* (to which, in equilibrium, all these commodity rates are, by Sraffa, said to be equal)?' This is a question about the rate of interest on money which is neither posed nor answered by traditional theory. Nor does Sraffa himself say anything about the determination of the money rate. Perhaps, though, it was immediately obvious to Keynes that the penalty for forward (delayed) delivery of money constituted an inducement to the lender to part with money, analogous to the necessary inducement to the trader or speculator to bear the costs of carrying a commodity through time . . . ? Thus, the borrower of money, in paying interest, is understood to compensate the lender for being deprived of the benefits of having money to hand – compensation being paid, that is to say, for 'parting with liquidity'.

The combination of circumstances which forced or led Keynes to a new conception of interest must have been very powerful and compelling. In fact, by mid 1932, he must have recognised that the traditional understanding was being called in question from two different angles. For one thing recognition of the multiplier mechanism implied, not just (an uncontroversial point) that the supposed equilibrating mechanism of the rate of interest did not work very efficiently, but that, in reality, equilibrium of the income-expenditure circular flow was achieved by means other than interest rate changes. Secondly, Sraffa's concept of 'commodity rates of interest' existing on all sorts of tradeable items introduced to the discussion, *just when a new theory of interest was needed*, a *different view* of the nature of interest. Now, as we have noted, Sraffa did not himself offer a new *theory* of interest – he proposed no explanation as to what determines the rate on money: but, we suggest, the conceptual framework he offered was such as could easily be related to Keynes's own thinking about the factors determining the relationships of spot to forward prices, and was also such as could accomodate Keynes's own new insight that interest on money was the

reward for parting with liquidity. In fact, Sraffa's formulation, when developed by bringing realistic factors, such as the carrying costs of commodities, into the picture, virtually *demanded* an explanation of interest on money in terms of some essential property of money – an explanation which Keynes was able to provide. It might well be, then, that it was Sraffa's analysis of 'commodity rates of interest' that suggested to Keynes a new way of viewing the rate of interest on money as a 'thing in itself' (which Keynes then interpreted as a premium the value of which corresponds to the inherent properties of money, considered as an asset competitive with other assets). But nevertheless 'liquidity preference' itself must surely, without any doubt, be recognised as Keynes's own contribution, representing an understanding which could only have emerged out of Keynes's lifetime contemplation of how decisions are made in a world of uncertainty.

What can we make of this scenario?

To sum up: we of course cannot say for definite exactly how the liquidity preference theory of interest came into being, but two things are clear. (a) Very shortly after the publication of Sraffa's paper on Hayek, Keynes had abandoned the neoclassical conception of the natural rate and the market rate, on which both he and Hayek had built their analyses (the *Treatise* and *Prices and Production*), and (b), in place of the conventional theory Keynes had adopted a conception of the nature of interest on money which evidently, as expounded in Chapter 17, closely paralleled Sraffa's identification of interest on money as but one instance of the general phenomenon of payment of a 'natural' rate of interest on any item sold for forward delivery – i.e. borrowed over time. Keynes certainly (as acknowledged by footnote, Keynes, 1936, p.223) took Sraffa's bare and abstract conception and developed it into his most 'general' statement of the *General Theory* – in the form of a theory of asset returns, asset choice and economic activity in the context of a real world production economy operating under conditions of uncertainty. But of course that is not all. The correspondence of Keynes's *General Theory* analysis with the Sraffa conception may be seen, not only in chapter 17, also in the less exotic and more familiar elements of the *General Theory*. It is the correspondence of Keynes's new theory of interest with Sraffa's notion of the existence of a whole set of 'natural' rates that permitted Keynes to fill (via liquidity preference) the gap left by rejection of the neoclassical theory of interest – in particular the gap revealed by recognition of the want of a genuine theory of the interest on money; and it is that same correspondence with Sraffa's

insight that allowed Keynes to explain the volume of investment as determined (given expectations) by the relationship between two *separate* rates of asset return, interest on money and the marginal efficiency of capital.

We have noted the chronology whereby successive versions of macroeconomic theory were tried out as Keynes, recognising the limitations of the *Treatise*, sought to construct a more satisfactory theoretical structure, and we have observed that, by the latter part of 1932, the key elements which would form his new 'general theory' were in place. We suggest that it is difficult to believe that Sraffa's critique of Hayek – specifically the novel treatment of interest there expounded and made available for further development – did not have some significant influence on the development of Keynes's thinking at this critical time of theory rejection and construction.

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