Keynesian Economics: The Search for First Principles

By ALAN CODDINGTON

Queen Mary College
University of London

I would like to acknowledge various forms of indebtedness in connection with this paper: to, among others, Thanos Skouras, Alan Peacock, David Currie, and an anonymous referee of this journal for helpful comments on an earlier draft; to Michael Kennedy and Colette Bowe for indispensable guidance at various stages; and to the University of Manchester for the Hallsworth Fellowship in Political Economy, which made this work possible.

I. *Introduction*

IN *The General Theory of Employment, Interest and Money* [13, 1936] and elsewhere, Keynes attacked a body of theory that he designated "Classical." In posing a threat to the "Classical" system—or at least to a recognizable caricature of it—Keynes also called into question the method of analysis by which this system was constructed. The purpose of this article is to inquire into the various ways in which methods of economic analysis have come to terms with this threat, either by responding to it or by reinforcing it with further threats; it seeks to ask the question: "What has to be changed or sacrificed in order to accommodate Keynesian ideas within standard methods of analysis?" Its theme will be the variety of ways in which this may be done: three broad types will be presented and the contrasts between them explored.

The first task accordingly is to characterize the method of analysis of that body of theory in opposition to which Keynes presented his own. Very broadly, this method consisted of analyzing markets on the basis of the choices made by individual traders. Thus, the resulting theory operates at two distinct levels—that of individual choice, and that of market phenomena—even though the connection between the two levels may be provided only by an analysis of the choices of a "representative" trader. Moreover, in order to provide a basis for a manageable analysis of market phenomena, the analysis of individual choice has to be of a particularly stereotyped and artificial kind. This method of analysis, using market theory based on choice theory of a type that allows the two levels to be connected, I will refer to as "reductionism," on the grounds that the central idea is the *reduction* of market phenomena to (stylized) individual choices.

Considerations of tractability impose restrictions on the kind of choice theory on which the market theory can be based: the theory cannot deal with choices in all the idiosyncratic detail in which actors conceive of them, nor in terms of the elusive and wayward manner in which actors make up their minds; stable objectives and well-defined constraints are needed to provide a firm enough foundation for market theory. And just as the choice theory has to be restricted in the interests of building up to market theory, so the market theory has to be restricted in the interests of working back to choice theory. Overwhelmingly, reductionist theorizing has confined its attention to situations of market equilibrium; for these situations a choice theory basis is relatively straightforward. There may be, in accordance with the standard schedules, a gap between market demand and market supply, but the choice theory from which each of these schedules is derived supposes that all choices are realizable; accordingly, the standard schedules can tell us nothing about what will happen when the traders attempt to do what, in the aggregate, is impossible; nor are the schedules likely to persist as the traders become aware of the difficulty of doing what they had regarded, in making their (intended) choices, as straightforward. Overwhelmingly, therefore, reductionist theory has been concerned with the connection between equilibrium states of market phenomena and the choice logic from which these states could be generated. It should be noted, however, that this concern with market equilibrium is not a defining characteristic of reductionism: it is rather a way in which reductionist theorizing has been rendered manageable.

II. *Fundamentalist Keynesianism*

If Keynes's ideas are to be seen as a threat to the reductionist program, the question naturally arises of how serious a threat they are: of how fundamental the aspects are that are threatened. Those who have seen Keynes's work as a frontal assault on the whole reductionist program, I will refer to as "fundamentalist Keynesians." It is the purpose of this section to expound such an interpretation, to consider some of the difficulties in sustaining it, and briefly to discuss its significance for economic theorizing.

Like the interpretation of the work of any active mind, the interpretation of Keynes's writings requires the use of selection and emphasis: it requires a view as to what is central and what merely peripheral, what is essential and what merely incidental, in his writings; in this way apparent inconsistencies and obscurities may readily be resolved, at least to the satisfaction of those adhering to that interpretation. For fundamentalists, what is central and essential in Keynes's writing is to be found primarily in his article "The General Theory of Employment" [14, 1937] in the *Quarterly Journal of Economics* of 1937, an article concisely restating the argument of the *General Theory* in response to various critics; in the *General Theory* itself, the essence is said to lie in chapter 12, "The State of Long-Term Expectations," and, to a lesser extent, in chapter 17, "The Essential Properties of Interest and Money." The kind of considerations to be found in these places can be traced back at least to the work of ten years earlier in *The End of Laissez-Faire* [12, 1926] and, with hindsight, still further back.

An early statement of the fundamentalist position was provided by Hugh Townsend [28, 1937]. He argued that the kind of considerations raised by Keynes in his theory of liquidity preference have quite devastating consequences for reductionist price theory if they are allowed to apply to all assets. Once all prices are seen as *money* prices, and all assets as bearing a liquidity premium, price theory becomes enmeshed in the same tangle of expectational and conventional elements that characterizes Keynes's theory of the rate of interest. On this view, the hope of extracting "real" (relative) prices from their monetary context looks bleak; although we should not, as Hicks [9, 1946, chap. 12] has pointed out, confuse Keynes's innovation in analytical procedure (in dealing with the rate of interest in association with money-holding decisions rather than with borrowing and lending) with his substantive contributions. Nevertheless, the threat to the reductionist program does, on this view, indeed appear to be a fundamental one.

Perhaps the most uncompromising, and certainly the most tirelessly eloquent, exponent of fundamentalist Keynesianism is G. L. S. Shackle [25, 1967; 26, 1972; 27, 1974]. His own work has centered on the irreducibly creative element in human choice: its basis in constructs of the choosing mind. His appreciation of Keynes's contributions to economic theory has, accordingly, centered around this same concern, and naturally he sees these matters of expectation, uncertainty, and ignorance —matters of the provision of knowledge-surrogates in the face of knowledge deficiency—as of the essence. A most succinct distillation of Shackle's reading of Keynes has recently been provided by B. J. Loasby [17, 1976].

One further line of thought must be mentioned in the present context: this is one that has attempted to use the fundamentalist aspect of Keynesianism as a way of clearing the ground to permit a return to a certain cluster of doctrines and concerns that are variously referred to as "classical" (as distinct from "neoclassical") or "Neo-Ricardian." The objective of this school, whose most distinguished practitioner is Joan Robinson, is to produce a hybrid of Keynesianism with those aspects of Ricardo's work that were appropriated by Marx: Ricardo minus Say's law and the quantity theory of money.

Keynes's *QJE* paper of 1937, to which fundamentalists attach such great importance, is, first and foremost, an attack on the kind of choice theory that is required for the reductionist program. As against the clearly specified and stable objectives and constraints required by reductionist theorizing, Keynes emphasises that the basis of choice lies in vague, uncertain, and shifting expectations of future events and circumstances: expectations that have no firm foundation in circumstances, but that take their cues from the beliefs of others, and that will be sustained by hopes, undermined by fears and continually buffeted by "the news." He was drawing attention to both the importance and the elusiveness of the state of business confidence, and the way it unfolds. Keynes focused on the conventional element in valuation: the way in which valuations may persist to the extent that they are shared, but are thereby rendered sustainable in the face both of minor events and of changes in circumstances, but vulnerable to anything that threatens this conventional basis. In the course of a riot, for example, the moods and feelings of the rioters may be widely shared until, at a later stage when the riot has lost its force, the moods and feeling may generally and rapidly revert to normal. The coordination of such crowd behavior and its characteristic dynamics arise from the fact that the participants are taking their cues directly from one another. Reductionist choice theory as it has been developed does not shed any light on decisions involving such immediate and strong interdependence as this.

Once its choice-theoretic foundations are threatened, the whole reductionist program is called into question; for without them the market theory would have nothing on which to stand, nothing to which it could be reduced. The concept of market equilibrium is in this way left exposed to attack. For without a clearly-specified and stable basis in choice logic, the idea of market equilibrium is no longer connected to the realizability of individuals' intentions in the aggregate. This does not mean that market equilibrium cannot be rehabilitated; what it means is that the sustainability of equilibrium must depend on conditions that are confined to the level of the market. For the fundamentalist, however, Keynes's ideas require the rethinking and reconstruction of the whole body of reductionist theory: its choice-theoretic basis and the equilibrium theory of markets that rests on it.

The objections to equilibrium theorizing have been elaborated by fundamentalist Keynesians. Joan Robinson has shown that if the idea of equilibrium is pursued relentlessly, then as the concept becomes all-embracing it becomes paralyzed by its own logic: equilibrium becomes a state of affairs that is, strictly, unapproachable: unless it already exists, there is no way of attaining it [20, 1953]. Similarly, in the work of G. L. S. Shackle, the idea of general equilibrium is shown to require the *pre-reconciliation,* one with another, of all present and future choices of all economic actors [26, 1972]. On either ground it would follow that the standard use of the method of comparative statics (or, better, "comparative equilibria") to analyze the effects of changes in circumstances, is strictly unwarranted and illegitimate.[1] Of course, this line of thought would have nihilistic consequences for the entire corpus of economic theory and in particular for its applicability; in this respect, the line of thought reaches a purist and impractical conclusion that is in marked contrast to Keynes's own highly eclectic approach to economic theory.

The concept of equilibrium is accordingly seen by fundamentalists not as a useful simplification for economic theorists, but as a distraction.[2] The essence of Keynes's thought is seen as the liberation from equilibrium theorizing, as an escape from the restrictions that it imposes on our thinking. This, however, is not so much a matter of what Keynes said, as of what we are led to if we follow his line of thought, taking the *QJE* article as the definitive guide to its direction.

Where we are led by a line of thought depends a great deal, of course, on where we are disposed to go. Fundamentalists have, correspondingly, contributed freely of their own preoccupations in arriving at interpretations of Keynes's thought. At their most uninhibited, fundamentalist Keynesians have presented Keynes's ideas as an escape from the essential "timelessness" of the modes of thought he attacked. More concretely, they have presented his central message regarding employment as concerning the existence of a liquid asset in a world of uncertainty, thus providing a retreat from the holding of real assets and the associated commitment to (employment-generating) production of a particular output. This theme has been much elaborated by Shackle and is concisely expounded by Loasby; in Joan Robinson's work, however, we find its place taken by a preoccupation with the heterogeneity of capital goods: the fact that individual items of the capital stock that history bequeaths to us cannot be costlessly transformed into one another, but exist in particular forms, embodying particular techniques, reflecting the superseded expectations of the past. The problems raised by the existence of liquid assets and durable, functionally specific capital assets, are not, however, unrelated; the nature of capital goods means that holding them involves a kind of commitment, while the nature of liquidity allows an escape from that particular commitment.

Fundamentalist Keynesianism, in seeing Keynes's ideas as a wholesale onslaught on the reductionist program, does not see those ideas as providing a substitute for that program. Rather, it sees Keynes's own ideas as a *first step* in a thorough-going revision of economic theory.

[1] This argument is elaborated in Coddington [3, 1975] and Loasby [17, 1976, chap. 3].

[2] Thus: "The argument stops when . . . the equilibrium lullaby hushes further inquiry" [21, Robinson, 1964, p. 80]. But this soporific effect is never reconciled with the concurrently held view that "The concept of equilibrium, of course, is an indispensable tool of analysis" [21, 1964, p. 78].

Accordingly, it sees what Keynes did *constructively* as merely a makeshift, an improvisation, a stop-gap. To take the constructive part of Keynes's work (in developing the consumption function, the marginal efficiency of capital schedule, *etc.)* as being the substance or result of "the Keynesian Revolution" would therefore betoken a failure of nerve, a betrayal of fundamentalist principles.[3]

In order to sustain the fundamentalist interpretation, it is necessary to postulate that Keynes himself had occasional lapses. Thus, Joan Robinson [23, 1973, p. 3] writes:

> . . . there were moments when we had some trouble in getting Maynard to see what the point of his revolution really was, but when he came to sum it up after the book was published he got it into focus.

Here she refers, of course, to the *QJE* article of 1937.

Again, she writes [21, 1964, p. 75]:

> The *General Theory* broke through the unnatural barrier and brought history and theory together again. But for theorists the descent into time has not been easy. After twenty years the awakened Princess is still dazed and groggy.
>
> Keynes himself was not quite steady on his feet. . . .

She then goes on to refer [21, 1964, p. 75] to Keynes's ("highly suspicious") remark about the timeless multiplier [13, 1936, p. 122].

A major embarrassment for fundamentalists is to be found in the final chapter of the *General Theory*. Here we find Keynes arguing as follows [13, 1936, pp. 378–79]:

> . . . if our central controls succeed in establishing an aggregate volume of output corresponding to full employment as nearly as is practicable, the classical theory comes into its own from this point onwards. If we suppose the volume of output to be given, *i.e.* to be determined by forces outside the classical scheme of thought, then there is no objection to be raised against the classical analysis of the manner in which private self-interest will determine what in particular is produced, in what proportions the factors of production will be combined to produce it, and how the value of the final product will be distributed between them.

This is abundantly clear, and in obvious conflict with the fundamentalist view of Keynes's thought being subversive of the whole classical ("reductionist") scheme. Accordingly, we find Joan Robinson writing [21, 1964, p. 92], in connection with this passage, of the "fallacy" that Keynes fell into, and remarking sadly that, "He was himself partly to blame for the perversion of his ideas" and "Keynes himself began the reconstruction of the orthodox scheme that he had shattered" [22, 1971, p. ix].

A further embarrassment for fundamentalists is that Keynes indicated quite clearly that he found nothing to object to in Hicks's distillation [8, 1937] of the *General Theory* into the *IS/LM* framework, or what has come to be known as "the income-expenditure model," quite devoid of any fundamentalist characteristics.[4] This again must be seen as some kind of momentary lapse on Keynes's part if the fundamentalist interpretation is to be sustained, at any rate if Keynes himself is to be allowed to be a fundamentalist Keynesian.

What, then, does fundamentalism add up to? It does not provide any sort of determinate theory or model of how the economy functions at the aggregate level; it does not enable one to make any definite predictions about the likely effects of alternative policies or circumstances. On

[3] An immediate difficulty for fundamentalists is the fact that the *QJE* article of 1937, after having advanced the arguments already discussed, goes on to stress the importance of the consumption function, which is then deployed (anticipating terminology I will introduce at a later stage) in a thoroughly hydraulic fashion.

[4] See Keynes's letter of March 31, 1937, to Hicks in Hicks [10, 1973, pp. 9–10].

the contrary, it is a viewing point from which such constructions would appear as rather desperate makeshifts of transient applicability. Fundamentalist Keynesianism is concerned with the texture rather than the direction, as it were, of the economic process.

To stress the basis of all economic activity in more or less uncertain expectations is precisely to emphasize the openness and incompleteness of economic theorizing and explanation. It does not itself provide any kind of fixed mechanism according to which the unfolding of events takes place; but it does show how one would set about constructing a narrative of events. It is a view about where the gaps are in the causal chains that can be identified in the economy: the points at which the economic process is susceptible to influence. We can accordingly begin to appreciate the deep ambivalence of this standpoint towards economic policy. On the one hand, it sees potentiality for enormous leverage, the whole economic process moving in response to changing states of mind and consciousness; on the other hand, the very precariousness of this vision leads very naturally to thoroughgoing scepticism about the predictability of the effects of deliberate attempts to apply leverage in pursuit of political objectives. The point of view in itself provides no guidance on whether the precariousness is so pervasive as to undermine the potential for political leverage. That is to say: the wayward and unruly character of individual choices—and in particular investment decisions—is seen as an impediment to economic functioning; but the question that must be faced from a policy point of view is whether it is a greater impediment to the self-regulation of the economy than it is to the workings of discretionary fiscal and monetary policy. This matter would involve not just the consideration of an impediment to economic functioning, but a comparison between its inhibiting effects on alternative modes of economic regulation. More broadly, the comparison also arises among the alternative effects of investment decisions taken within alternative institutional frameworks (various powers and responsibilities having been given to agencies of the State), whose regulative capacities then also become a part of the appropriate comparison.

In summary, we can say that fundamentalist Keynesians are united in seeing Keynesian ideas as posing a threat to the whole reductionist program; and that their primary concern has been to reinforce this threat with further threats. When it comes to providing an alternative to the reductionist program, however, matters are less unified. There is a marked contrast, for example, between the prospectus offered by Joan Robinson for the completion of the Keynesian revolution and the insight offered by Shackle into its integrity and essence. And when we move from the critical to the constructive aspects of fundamentalism, not only are matters less unified, they are also less definite. In Loasby's work, this indefiniteness is transformed into a methodological principle [17, 1976, p. 167]:

> If one can summarise in one sentence the theory of employment set forth by Keynes in his [*QJE*] article of 1937, it is this: unemployment in a market economy is the result of ignorance too great to be borne. The fully-specified macroeconomic models miss the point—which is precisely that no model of this situation can be fully specified.

III. *Hydraulic Keynesianism*

During the nineteen forties and fifties, there appeared a number of expositions of "Keynesian economics," attempting to make the ideas accessible to students, and even to intelligent laymen. What these works had in common, quite apart from matters of substance, was an unmistakable enthusiasm for (what were taken to be) Keynes's ideas. This enthusiasm was at times unrestrained to the point of excitement; it was the authors of these works who spoke without reservation of a "Keynesian Revolution," one of the books in fact having this title [15, Lawrence R. Klein, (1949) 1966]. It is some indication of the level of enthusiasm reached by these expositors and popularizers that one, Jan Pen, wrote a book setting out and discussing a particular specification of a static "Keynesian" model of relationships between a small number of macroeconomic aggregates and gave it the title *Modern Economics* [19, 1965]. It is not my intention here, however, to attempt to chart the process of the diffusion and popularization of Keynes's ideas.[5]

The period of Keynesian enthusiasm was really the post-war period: the ideas went cantering briskly through the fifties and early sixties; faltered sometime in the middle sixties and stumbled into the seventies.[6] This, at any rate, is the picture as its emerges at the level of popular influence, at the level of widely and influentially-held views on macroeconomic policy; at the level, that is, of Keynesianism as a doctrine about how a largely decentralized economy may be subject to broad (as opposed to detailed) central control or influence through the instrument of the budget. It is tempting to adopt the practice of referring to this doctrine as "fiscalism" to show that it is a particular variant (and perhaps a corruption or vulgarization) of Keynes's ideas. At any rate, it is important to keep distinct the ups and downs of Keynesianism as a policy doctrine from those of Keynesianism as an academically respectable theory of the functioning of a capitalist economy at the aggregate level.[7] Indeed, the esteem in which the two aspects have been held has tended to move in opposite directions, the period when "fiscalist" policy enthusiasm was at its height being a time at which the intellectual interest in the underlying theory had become moribund. Again, the demise of "fiscalism" in the late sixties and early seventies was accompanied by a reawakening of interest in the underlying theoretical conceptions. (We shall have more to say about this revival in the next section.)

All this should not be allowed to give the impression, which would be quite mistaken, that the fiscal enthusiasm stemming from Keynes's ideas did not include, or could not provide, a theory in support of its policy doctrine. It could and it did. What, then, we are led to ask, is the theoretical basis for fiscalist enthusiasm? How is it to be characterized as one of the strands in the development of Keynesian thought? It is to these questions we now turn.

The theoretical content of the body of ideas that has been propagated through the educational system in the West since World War II as "Keynesian Economics" (by, for example, Paul Samuelson's pedagogically authoritative textbook [24, 1973]) I shall proceed to refer to as "hydraulic Keynesianism." This designation reflects the view that the natural and obvious way to regard elementary textbook Keynesianism is as conceiving of the economy at the aggregate level in terms of disembodied and homogeneous flows. Of course, conceiving of the macro-economy

[5] But see John Kenneth Galbraith's "How Keynes came to America" for some interesting insights into the way Keynesian ideas made their entry into the U.S. academic economics establishment [5, 1971].

[6] For an attempt at intellectual stock-taking at that time, see my "Rethinking Economic Policy" [4, 1974].

[7] Reflecting on the fragmentation of Keynesian thought, Axel Leijonhufvud makes the following observation: "For some time now, contentment with this state of the arts has rested on the motto 'The Theoretically Trivial is the Practically Important and the Practically Important is the Theoretically Trivial.' It is a disturbing formula which can hardly be a permanent basis for the further development of the field" [16, 1968].

in this way will be fruitful only to the extent that there exist stable relationships between these overall flows. And it is my contention that the central characteristic of "hydraulic Keynesianism" is the belief that such stable relationships do exist at the aggregate level. It is this belief that gives some point to the hydraulic conception; without such a belief the conception would simply be a matter of national income accounting, not of economic theory.

It should be noted that the flows involved in this conception are flows of expenditure, income or output. That is to say, neither prices nor quantities per period make a separate appearance: they appear inextricably in the contribution each makes to the overall flows of spending and receipts. It should now be apparent why the belief in the existence of, and the attempt to establish, stable relationships between the overall flows is radically inconsistent with reductionism. For any reductionist program must give a crucial role in its theorizing to *prices as such* (not to the contribution they make to overall spending flows). The grounds for this view are that it is prices as such that provide the incentives that individuals face in making the choices on which the whole scheme is to rest. This does not mean that hydraulic Keynesianism can allow no part at all to be played by prices; when we come to think of such prices as embracing wage rates and interest rates, we can see that this cannot be so. Correspondingly, it does not mean that reductionism is incapable of allowing overall flows to play any part in its scheme. Since these are alternative programs for theorizing, rather than alternative theories, they revolve around matters of emphasis. They do not concern what can or cannot play a part in a theory, but what can or cannot play a *central* part.

In fact, contrary to the standpoint associated with reductionism, hydraulic Keynesianism is a scheme in which there is only one agency making deliberate acts of choice; that one agency is "the government." And it is the belief that there are indeed stable relations among the various overall flows in the economy that provides a basis for "the government" to pursue its policy goals regarding the overall level of economic activity and hence, relatedly, of the level of employment. It is the stability of these aggregate relationships that provides "the government" with the leverage it needs to influence those flows that are not under its *direct* control. By making deliberate choices for the flows it does control (via the budget), and bearing in mind the (allegedly) stable relationships between this and the other flows that are objects of concern for economic policy, "the government" can, in principle, exercise an indirect control on the overall level (although not the composition) of the flows that are not the objects of anyone's deliberate choice. That is the story. On the face of it, it may appear a major triumph in the march of human reason: a dramatic and irreversible extension of the boundaries of political responsibility. Instead of unemployment and depression being seen and accepted passively, like the weather, they are to be seen as matters for human will and design, something that human agency, through the instrument of central government, could actually resist and remedy.[8] As an idea it looked both simple and good; accordingly, it was, at the end of the war, rapidly assimilated to both the policy statements and rhetoric of all major political parties.[9]

[8] This changed attitude did not come easily or quickly, and fundamental attitudes had been undergoing a process of erosion for some decades by the time Keynes came on the scene. For a painstaking documentation of this process in Britain, see José Harris [7, 1972].

[9] The major bridge in Britain between Keynesian doctrines and political platforms was William Henry Beveridge [1, 1944]. The ideas were given official recognition in the White Paper *Employment Policy* [6, 1944].

In summary, it can be seen that the hydraulic approach is in conflict with reductionist market theory. The hydraulic approach shows how things would work when market prices (and wages) will not, or will not quickly enough, or will not be allowed to, perform their allocative role; it analyzes a situation in which prices are failing, both as disseminators of information about relative scarcities and in the provision of incentives to act on the basis of that information.

If the central message of the *General Theory* is that overall employment is more a matter of the demand for output than of real wages, except when "full employment" already obtains, then that message is certainly embodied in the hydraulic approach. As such, it is an audacious simplification, which is, on the face of it, in conflict with the corpus of reductionist theorizing. Furthermore, as a way of thinking about macroeconomic policy, it seems to work to some extent, sometimes. The intellectual problem that it raises, however, is that of its own *scope*. What we need to know are the circumstances in which, and the extent to which, the operation of an economy may be conceived of in hydraulic terms. There are various approaches to this question. A familiar one is provided by the *IS-LM* apparatus, within which it can be readily shown that the economy exhibits the characteristics of the hydraulic model to the extent that the interest elasticity of expenditure is low and of the demand for money is high; with a zero interest elasticity of expenditure and an indefinitely large interest elasticity of demand for money, the operation of the economy would be exactly in accordance with the hydraulic model: changes in expenditure flows would lead to changes in output flows without any repercussions on the rate of interest. In sum, it follows that the economy may exhibit the characteristics of the hydraulic model to the extent that the interest rate is impeded, for whatever reason, in its attempts to respond to changes in expenditure.

Since the *IS-LM* apparatus was put forward by Hicks, however, we have had something like 30 years experience of demand management policies based on the assumption that the economy exhibits marked hydraulic characteristics in the short-run; and the question of why these policies have been less effective at some times than others naturally raises in a practical way the question of the scope of the hydraulic conception. It is therefore of considerable interest that Hicks, in a revision of Keynesian economics in the light of this experience, does not adopt his own *IS-LM* apparatus for the purpose [11, 1974, chap. 1]. Rather, he provides an alternative framework in which the possibility of an expansion in demand being translated into an expansion of output depends crucially on the structure of inventories at the outset of the process. In particular, it depends crucially on there being plentiful stocks of materials to sustain investment projects until decisions to increase the output of these materials are taken; or what amounts to the same thing, it depends on there being ample foreign exchange reserves representing command over foreign inventories of materials. Unless this condition is met, the attempted expansion can easily run up against bottlenecks and dissipate itself in the diversion of resources from other uses and, notoriously, in creating balance of payments problems. Of course, if the increase in investment expenditure *is* translated into a net increase in real investment, the multiplier process can set in, and adequate stocks of consumer goods will then be required to avoid bottlenecks at this stage and sustain the expansion.[10]

[10] This analysis can readily be transformed from a "fixprice" basis to a "flexprice" one; in which case the precondition for a successful expansion becomes that the prices of the various goods needed to sustain the expansion while changes in expenditure are being translated into changes in output are significantly

There are, of course, other approaches to the question of the scope of hydraulic theorizing. Indeed, the Monetarist arguments against Keynesian conclusions may be seen as one possible answer to this question: namely, that the scope of hydraulic theorizing is practically nonexistent. In these arguments the Keynesian conclusions are undermined by the reintroduction of a choice-theoretic basis of the standard reductionist type. As we shall see in the next section, the work of Clower and Leijohhufvud may also be seen as contributing to this question of scope, although this is not how either of them presented his work.

IV. *Reconstituted Reductionism*

During the 1960's there emerged a school of thought, associated primarily with the names of Robert W. Clower [2, 1969] and Axel Leijonhufvud [16, 1968], concerned with reappraising Keynes's contribution to economics. These writers presented their work as concerned with reestablishing and reasserting the discontinuity between Keynesian economics and its alternatives, a discontinuity that they saw as having been blurred and finally lost to view by the various activities of interpretation, condensation, and reconstruction that came in the wake of the *General Theory*. It is within this perspective accordingly that the contribution of Clower and Leijonhufvud to our understanding of Keynes has been discussed and appraised. My purpose here, however, will be to present the dispute between Clower and Leijonhufvud, on the one hand, and those whose views they were combating, on the other, as a family quarrel within the reductionist program. Most fundamentally, the family quarrel is about the expendability of the concept of equilibrium: the Clower-Leijonhufvud position being that the concept of equilibrium should be abandoned in the interests of a more thorough-going reduction of Keynesian ideas to choice logic. The thesis is that once equilibrium has been abandoned and one focuses on a process of trading at disequilibrium prices, then one has a framework that is entirely congenial to Keynesian ideas, unlike the framework of equilibrium theorizing which, on this view, leaves room for them in only the most attenuated and *ad hoc* form. The problem then becomes one of providing a more sophisticated specification of the constraints on individual choices, opening up the possibilities for theoretically novel and challenging forms of market interdependence arising from a schematization of the process of disequilibrium trading.

In order to lead up to my characterization of the work of Clower and Leijonhufvud, it is appropriate to begin by discussing each writer's own characterization of his work: how each of them conceived of the task he had set himself. I will argue that their own characterizations are in various respects unsatisfactory, and that my alternative is not therefore gratuitous. I shall not, however, attempt to substantiate the designation of the work of these writers as reductionist. I shall take it that once the idea of what is involved in the reductionist program is appreciated, it should be clear that this work falls within the program.

Let us take Clower first. Having advanced the "dual decision hypothesis" as a basis for expecting consumer spending to depend on current income, Clower goes on to speak unguardedly of Keynes having had this theory of household behavior "at the back of his mind when he wrote the *General Theory*" [2, 1969, p. 290]. Clower goes on immediately to admit that "I can find no direct evidence in any of his writings to show that he ever

below normal, so that as the expansion proceeds traders will release their stocks onto the market as prices rise. If this condition is not satisfied, the expansionary impetus will be *wholly* dissipated in price increases [11, Hicks, 1974, pp. 23–30].

thought explicitly in these terms." After advancing what he takes to be "indirect evidence" for this, he concludes that "Keynes either had a dual-decision hypothesis at the back of his mind, or most of the *General Theory* is theoretical nonsense." The picture here seems to be one of Keynes with a mind full of ideas, *some* of which he got onto the pages of the *General Theory,* the task being to work out what the remainder must have been. This is a problem of reading not so much between the lines as off the edge of the page. In his conclusion, however, Clower maintains, rather more soberly, that his purpose has been "simply to clarify the *formal basis* of the Keynesian revolution and its relation to orthodox thought" (emphasis added) [2, 1969, p. 295]. This then leaves the task quite up in the air, for it is not explained to the reader how this relates to the previous concern with what Keynes had "at the back of his mind."

Turning to Leijonhufvud, we find that he is at some pains to try to make clear the task he has set himself. First, he makes it plain that the doctrine-historical question of "what Keynes really said" is a strictly secondary matter for his purposes [16, 1968, p. 9]. "The primary purpose," he explains, "remains . . . to provide a fresh *perspective* from which the income-expenditure theory may be reconsidered" [16, 1968, pp. 9–10]. (The "income-expenditure theory" is Leijonhufvud's label for the "conceptual framework which has crystallized out of the debate triggered by the *General Theory*" [16, 1968, p. 6].) This seems straightforward enough. The difficulty arises because what was presented was not just "Leijonhufvud's fresh perspective," but rather the fresh perspective that Leijonhufvud claimed to have distilled from the *General Theory* itself. On the face of it, the task appears to be to get a perspective on the whole debate by going back to the origins of it. But the question arises of how the responsibility for this new perspective is to be apportioned between Keynes and Leijonhufvud. Keynes may well have provided the inspiration for the task, but if the product of the distillation is to be presented as a (purified) "Economics of Keynes" to be contrasted with the (corrupted) "Keynesian Economics," then we are back in the realms of mind-reading, especially as this "Economics of Keynes" can be read into the *General Theory* only with what seems to me to be a great deal of ingenuity and determination. So although Leijonhufvud at first seems to be concerned with the rather modest task of finding *a* fresh perspective from which the development of Keynesian Economics can be surveyed or appraised, it turns out that he is in search of *the* one perspective from which the Keynesianness of these developments can be judged. What looks at first like a search for new angles turns out to be a search for authenticity.

But it is not just a matter of authenticity, for the fundamental presumption that underlies the work of Clower and Leijonhufvud is that Keynes said something important, not only for economic policy, but for economic theory. They are saying: "Let us read the *General Theory* in a search for theoretical innovation." In other words, far from being engaged in disinterested exegesis (as the concern for authenticity might suggest), they were concerned with reworking with a view to rejuvenating (by which standards they must be judged to have had some success).

How, then, is the task that Clower and Leijonhufvud set themselves to be expressed and understood? The view I want to advance is that they were setting themselves the task of constructing a framework that would provide room or scope for Keynesian ideas. This quite rightly takes it for granted that we already have a good rough idea what Keynesian ideas are: of what the *General Theory* was driving at. What was wanted was a theoretical niche in which what were taken to be

Keynes's insights could take root and thrive. The motive for this search was evidently the recognition that the framework of general equilibrium theory that had been widely adopted for attempts at precise expression of Keynesian ideas leaves practically no room or scope for them: they may appear in only the most attenuated and *ad hoc* form.

On its own terms, then, the essence of the Clower-Leijonhufvud position is this: that in order to accommodate Keynesian ideas, we have to abandon equilibrium theorizing and address ourselves to an understanding of the process of disequilibrium trading. In my terms, however, it is not just equilibrium theorizing that has been shown to be uncongenial to Keynesian ideas, but rather equilibrium theorizing within the reductionist program. And one can see why this should be so without even taking any detailed view about the workings of the economy. For within reductionism everything boils down to acts of choice within a well-specified system of objectives, constraints and forms of interdependence; and in equilibrium theorizing we confine our attention to situations in which all the independently arrived at choices can be simultaneously realised. It then follows rather naturally, irrespective of any details of market forms or institutional arrangements, that such a system leaves no room for the "unintended" and "involuntary": for malfunctioning and disorder. It follows, however, from my characterization of such theorizing that there are two distinct possibilities for the accommodation of Keynesian ideas: (i) the abandonment of equilibrium and (ii) the abandonment of reductionism. Clower and Leijonhufvud consider only the former possibility. We can see, however, that the claim that equilibrium theorizing *must* be abandoned in order to accommodate Keynesian ideas postulates that theorizing *must* be carried out in accordance with the reductionist program; but this is something that Clower and Leijonhufvud simply take for granted.

The whole question of whether Keynesian ideas should be accommodated by abandoning equilibrium theorizing rather naturally raises the question of what use Keynes himself made of the concept of equilibrium.[11] It is certainly true that Keynes made use of the term "equilibrium." But before we conclude that if Keynes could express his ideas in these terms then they must be perfectly compatible with equilibrium theorizing, we must pause to consider the meaning of equilibrium and the uses to which an equilibrium concept might be put. We must bear in mind that it is entirely in keeping with Keynes's eclecticism that his use of the term equilibrium could have been a rather desperate improvisation at one stage in the "long struggle of escape."

An equilibrium is a configuration which, once attained, will be maintained provided the underlying circumstances (formally, the parameters and exogenous variables) remain unchanged. Accordingly, the interest and usefulness of an equilibrium construction, as an end in itself, depends on a question which is, in principle, an empirical one, namely: what is the range of variability of the underlying circumstances over the order of magnitude of the time involved in adjusting (near enough) to its equilibrium configuration?[12] That is to say, if the underlying circumstances are fairly stable relative to the speed of adjustment of the endogenous variables, the equilibrium configuration of the system becomes a matter of some interest in itself and may provide a reasonably useful substitute for becoming involved in the complexities of the adjustment process. It is something to know

[11] For a detailed exegesis of this point, see Don Patinkin [18, 1976, pp. 113–19].

[12] We are here avoiding the large question of whether the system may approach an equilibrium configuration without shifting the equilibrium that is being approached.

where we are heading, provided we have some grounds for believing that we will get most of the way there before we start heading somewhere else.

It is in the light of these considerations that we can say why Keynes's use of equilibrium constructions was a peculiar one: He was concerned with discussing, among other things, the instability of the underlying circumstances of his construction. That is, one of his focuses of interest was precisely the failure of his equilibrium construction to satisfy the conditions for the routine usefulness of an equilibrium construction. Therefore, in arriving at an appreciation of Keynes's method, it is not enough to ask the nature of his construction; we must enquire also into its mode of *animation*. When we have reason to expect relatively stable underlying circumstances, the construction may be animated according to the method of comparative statics. When the animation is endemic, when one is concerned, as it were, with the restlessness of the underlying circumstances, the use of the construction becomes less straightforward, and certainly less mechanical. Whether, in this case, there is anything much left of the concept of equilibrium is a matter of no particular importance. What is important is to see that, just as one does not expect to quell a riot by taking a photograph of it, neither did Keynes's makeshift use of the equilibrium concept involve the expectation that he could freeze the economy in a particular state. Shackle has expressed this idea with characteristic elegance [25, 1967, p. 182]:

> At each curtain rise the *General Theory* shows us, not the dramatic moment of inevitable action, but a tableau of posed figures. It is only after the curtain has descended again that we hear the clatter of violent scene-shifting.

We have seen that Clower and Leijonhufvud's version of Keynesianism is a reconstituted reductionism: it addresses itself not to the state of equilibrium, but to the problem of attaining it.[13] It asks the question how a decentralized market economy might, with some degree of effectiveness, perform the task that the Walrasian auctioneer would perform smoothly. To ask this question, one needs a construction in which prices adjust less than instantaneously to economic circumstances, so that at any point in time the prices may be effectively providing incentives to act, but the information they reflect will not be appropriate for the equilibrium that is being approached.

Now it may well be that formulating this question raises some of the most profound questions in macro- and monetary economics; but we are still in need, for the practical deployment of Keynesian ideas, of a usable simplification such as the hydraulic approach provides. And the use of such a simplification will require an awareness of the circumstances under which it may be expected to work tolerably well: an awareness of its *scope*. This is where a reconstituted reductionism may play a part. For in order to examine the scope of a theory in which prices fail altogether to play their (ideal) allocative role, one needs a theory in which there is a *partial* failure in this respect. This latter theory could then be used to interpret the practical successes and failures of the hydraulic approach: as a way of trying to distinguish the circumstances conducive to its being an adequate simplification. Accordingly, we should see Leijonhufvud's book as not so much about the economics of Keynes as about the *scope* of the economics of Keynes. Clower and Leijonhufvud claim to have shown that Keynes was trying to adapt the reductionist method to the expression of his own ideas by refocusing it on situations of market disequilib-

[13] In order to do this, Clower and Leijonhufvud avoid Joan Robinson's ultra-strict logic of equilibrium according to which the equilibrium state is unapproachable and hence the problem of attaining it insoluble.

rium. But in displaying the analytical unmanageability of such a program, they make it clear that, insofar as Keynes was able to come to any definite conclusions about economic functioning, he must have short-circuited such problems.

Within the hydraulic approach, employment problems are quite distinct from allocation problems; they arise at the aggregate level, and they are independent of relative prices and the composition of demand or output. The thrust of the reconstituted reductionist approach, however, is to present unemployment as a by-product or even a species of allocation problem. But if this formulation does not set any definite limits on the scope of the hydraulic simplification, all it can suggest is a general scepticism regarding the appropriateness of aggregate tools to deal with problems that are seen as involving the internal composition of those aggregates; this, however, adds nothing to what we already know, namely that the hydraulic approach *is* a simplification and abstracts from allocation problems. The question that still remains is essentially a question of *decomposability*. It is the question of the separability of employment problems from the allocation problems on which they are, in practice, superimposed. To what extent may we disregard the allocative structure of macroeconomic aggregates? Just how blunt an instrument is demand management? If the reconstituted reductionist approach could be made tractable without collapsing into the Monetarist simplification, it could be expected to shed some light on these matters (as indeed the Monetarist simplification itself has done).

V. *Conclusion*

In this paper we have considered three varieties of Keynesianism: the fundamentalist, the hydraulic, and the reconstituted reductionist approaches. Each one has been located in relation to the reductionist program: the fundamentalist approach by its rejection of the choice theory that is essential to and the (equilibrium) market theory that is typical of reductionist theorizing; the hydraulic approach by its short-circuiting of reductionist market theory and its eschewal of formal choice theory foundations; and the reconstituted reductionist approach by its attempt to make room for Keynesian ideas within the reductionist program by refocusing the market theory on disequilibrium states whilst retaining the standard choice-theoretic foundations.

It remains only to make some comments on the relationship of the approaches to one another; the thrust of these comments will be that the various approaches are, in their contribution to understanding, largely complementary.

The fundamentalist approach provides a very general critique of the methods of reductionism with regard to both its style of choice theory and the equilibrium theory of markets with which it is typically associated. As such it clears the ground for the introduction of Keynesian ideas; at the same time it forms a kind of backdrop against which hydraulic thinking can thrive, and, as it turns out, reductionism can reappear in a modified form. Hydraulic thinking can thrive because, in the absence of standard reductionist results, one needs some drastic simplification in order to say anything at all definite regarding forecasting or policy. (The alternative candidate is the drastic simplification provided by the quantity theory of money and its modern variants.) Reductionism can then reappear because, in making use of a drastic simplification, one is led to ask questions about its scope and limits; these questions will concern why the economy may not work in the way that standard reductionist theory indicates and are questions that could be formulated in a modified and expanded reductionist framework.

Thus, the fundamentalist approach clears the ground for Keynesian ideas, the hydraulic approach provides the dangerous simplification that makes them at all definite and manageable, and a loosened reductionism provides the reservations and qualifications that provide guidance on the scope of this simplification. The matter may be expressed cryptically in terms of Keynes's "long struggle of escape." We may say that what he escaped *from* was (unreconstituted) reductionism; what he escaped *to* was the hydraulic approach; and what he went through in the process of struggle has been preserved in the fundamentalist approach. For a generation brought up on Keynesian ideas, however, a sense of intellectual liberation is far more likely in the struggle of escape from hydraulic thinking into a reconstituted form of reductionism. In treading this particular path, Clower and Leijonhufvud were quite right to identify their work with that of Keynes; they differ from him only in their direction of travel.

References

1. Beveridge, William Henry [Sir]. *Full employment in a free society.* London: Allen and Unwin, 1944.
2. Clower, Robert W. "The Keynesian Counter-Revolution: A Theoretical Appraisal," in *Monetary Theory.* Edited by Robert W. Clower. Harmondsworth: Penguin Books, 1969.
3. Coddington, Alan. "Creaking Semaphore and Beyond: A Consideration of Shackle's 'Epistemics and Economics,'" *British Journal for the Philosophy of Science,* 1975, *26*(2), pp. 151–63.
4. ———. "Re-thinking Economic Policy," *Polit. Quart.,* Oct.–Dec. 1974, *45* (4), pp. 426–38.
5. Galbraith, John Kenneth. *A contemporary guide to economics, peace and laughter.* Boston: Houghton Mifflin; London: Andre Deutsch, 1971.
6. Great Britain Parliament. *Employment Policy.* Cmd. [6527], London: H.M.S.O., May 1944.
7. Harris, José. *Unemployment and politics: A study in English social policy, 1886–1914.* London: Oxford, Clarendon Press, 1972.
8. Hicks, John R. "Mr. Keynes and the 'Classics': A Suggested Interpretation," *Econometrica,* April 1937, *5,* pp. 147–59.
9. ———. *Value and capital.* Second edition. London: Oxford, Clarendon Press, [1939] 1946.
10. ———. "Recollections and Documents," *Economica,* Feb. 1973, *40*(1), pp. 2–11.
11. ———. *The crisis in Keynesian economics.* New York: Basic Books; Oxford: Basil Blackwell, 1974.
12. Keynes, John Maynard. *The end of laissez-faire.* London: Woulf, Hogarth Press, 1926.
13. ———. *The general theory of employment, interest and money.* London: Macmillan, 1936.
14. ———. "The General Theory of Employment," *Quart. J. Econ.,* Feb. 1937, *51*(2), pp. 209–23.
15. Klein, Lawrence R. *The Keynesian revolution.* London: Macmillan, 1949; Second edition, 1966.
16. Leijonhufvud, Axel. *On Keynesian economics and the economics of Keynes.* New York: Oxford University Press, 1968.
17. Loasby, Brian J. *Choice, complexity and ignorance.* Cambridge: Cambridge University Press, 1976.
18. Patinkin, Don. "Keynes' Monetary Thought: A Study of its Development," *Hist. Polit. Econ.,* Spring 1976, *8*(1), pp. 1–150.
19. Pen, Jan. *Modern economics.* Translated from the Dutch by Trevor S. Preston. Harmondsworth: Penguin Books, 1965.
20. Robinson, Joan. "The Production

Function and the Theory of Capital," *Rev. Econ. Stud.*, 1953–54, *21*(2), pp. 81–106.

21. ———. *Economic philosophy.* Chicago: Aldine, 1962; Harmondsworth: Penguin Books, 1964.
22. ———. *Economic heresies.* New York: Basic Books; London: Macmillan, 1971.
23. ———. "What has become of the Keynesian Revolution?" in *After Keynes.* Edited by JOAN ROBINSON. Oxford: Basil Blackwell, 1973.
24. SAMUELSON, PAUL A. *Economics.* Ninth edition of *Economics: An introductory analysis.* New York: McGraw-Hill, [1948] 1973.
25. SHACKLE, G. L. S. *The years of high theory.* Cambridge: Cambridge University Press, 1967.
26. ———. *Epistemics and economics.* Cambridge: Cambridge University Press, 1972.
27. ———. *Keynesian kaleidics.* Edinburgh: Edinburgh University Press, 1974.
28. TOWNSHEND, HUGH. "Liquidity-Premium and the Theory of Value," *Econ. J.*, March 1937, *47*(1), pp. 157–69.

LINKED CITATIONS

You have printed the following article:

Keynesian Economics: The Search for First Principles
Alan Coddington
Journal of Economic Literature, Vol. 14, No. 4. (Dec., 1976), pp. 1258-1273.
Stable URL:
http://links.jstor.org/sici?sici=0022-0515%28197612%2914%3A4%3C1258%3AKETSFF%3E2.0.CO%3B2-Q

[Footnotes]

[1] **Review: Creaking Semaphore and beyond: A Consideration of Shackle's 'Epistemics and Economics'**
Reviewed Work(s):
Epistemics and Economics: A Critique of Economic Doctrines by G. L. S. Shackle
Alan Coddington
The British Journal for the Philosophy of Science, Vol. 26, No. 2. (Jun., 1975), pp. 151-163.
Stable URL:
http://links.jstor.org/sici?sici=0007-0882%28197506%2926%3A2%3C151%3ACSABAC%3E2.0.CO%3B2-N

[4] **Recollections and Documents**
John Hicks
Economica, New Series, Vol. 40, No. 157. (Feb., 1973), pp. 2-11.
Stable URL:
http://links.jstor.org/sici?sici=0013-0427%28197302%292%3A40%3A157%3C2%3ARAD%3E2.0.CO%3B2-0

References

NOTE: *The reference numbering from the original has been maintained in this citation list.*

LINKED CITATIONS

[3] **Review: Creaking Semaphore and beyond: A Consideration of Shackle's 'Epistemics and Economics'**
Reviewed Work(s):
Epistemics and Economics: A Critique of Economic Doctrines by G. L. S. Shackle
Alan Coddington
The British Journal for the Philosophy of Science, Vol. 26, No. 2. (Jun., 1975), pp. 151-163.
Stable URL:
http://links.jstor.org/sici?sici=0007-0882%28197506%2926%3A2%3C151%3ACSABAC%3E2.0.CO%3B2-N

[8] **Mr. Keynes and the "Classics"; A Suggested Interpretation**
J. R. Hicks
Econometrica, Vol. 5, No. 2. (Apr., 1937), pp. 147-159.
Stable URL:
http://links.jstor.org/sici?sici=0012-9682%28193704%295%3A2%3C147%3AMKAT%22A%3E2.0.CO%3B2-E

[10] **Recollections and Documents**
John Hicks
Economica, New Series, Vol. 40, No. 157. (Feb., 1973), pp. 2-11.
Stable URL:
http://links.jstor.org/sici?sici=0013-0427%28197302%292%3A40%3A157%3C2%3ARAD%3E2.0.CO%3B2-0

[28] **Liquidity-Premium and the Theory of Value**
Hugh Townshend
The Economic Journal, Vol. 47, No. 185. (Mar., 1937), pp. 157-169.
Stable URL:
http://links.jstor.org/sici?sici=0013-0133%28193703%2947%3A185%3C157%3ALATTOV%3E2.0.CO%3B2-X

NOTE: *The reference numbering from the original has been maintained in this citation list.*