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Introduction

Robert Clover formulated the dual decision hypothesis (d.d.h.) in 1965 as an attempt to explain, as he saw them, the principal innovations in economic theory contained in Keynes's book "The General Theory of Employment, Interest and Money" (G.T.).

Clover wishes to restate Keynes's attack on orthodox micro-theory and its attendant macro-approach to economics, and in so doing uses an orthodox framework of analysis. In particular Clover aimed, in his reinterpretation of Keynesianism, (*1) to establish a hypothesis of household behaviour which would, if accepted, establish the classical theory of full employment general-equilibrium as a special case of a more general theory (the Keynesian Model).

He says (Clover, 1965)

"I shall argue that the established theory of household behaviour is, indeed, incompatible with Keynesian economics, that Keynes himself made tacit use of a more general theory, that this more general theory leads to market excess demand functions which include quantities as well as prices as independent variables and, except in conditions of full employment, the excess demand functions so defined do not satisfy Walras' Law."

Clover advances the d.d.h. as the "more general theory" of which Keynes made tacit use in The General Theory.

Two other points should be noted in regard to Clover's hypothesis. Firstly, he states that he derives excess demand functions which do not satisfy Walras' Law so we may assume he also dispenses with the Walrasian auctioneer. Secondly, and relatedly, Clover's article is one of the first in a series which deal with the issue of disequilibrium at the macro level and the associated micro behaviour in this state.

In evaluating the d.d.h. it is my intention to examine the hypothesis against a background of classical microeconomics and to evaluate the implications of Clover's work for Economic Theory with particular reference to the reinterpretation of Keynes's economics. Furthermore I am interested in discussing the limitations of the hypothesis resulting from various criticisms that have been raised in order to say something about the scope of the d.d.h.

Classical Microeconomics(*2)

I wish at this stage to outline a number of ideas pertaining to Classical

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- *1 With due respect to Leijonhufvud, Grossman etc. I shall distinguish neither between "Keynesian" and "of Keynes" nor between "Keynesianism" and "the economics of Keynes". Clover did not do so and I do not feel it is important to this presentation.
 - *2 Classical microeconomics is used to describe the general corpus of analytic techniques and their underlying assumptions which existed pre-Keynes' General Theory.

Economics which are important in this discussion.

1. Demand and Supply curves represent the outcomes of decisions by utility-maximising-households and profit-maximising-firms in equilibrium.
2. All agents are price-takers and on the basis of this income is a choice variable (for households) in the classical model.
3. Information is free, perfect, and is available to all agents.
4. Prices are flexible and respond to excess demands.

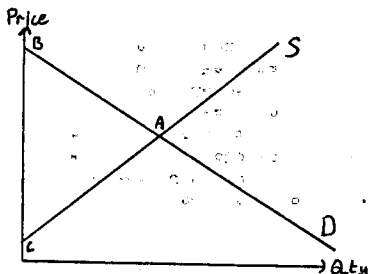


Figure 1

On the basis of these and other ideas the concepts of Supply and Demand may be seen as market constraints so that for any particular price level output or quantity in a market is constrained by supply, demand or both. These schedules are therefore boundaries of a feasible set within which the market must trade (see figure 1). The fact that agents maximise implies that the market will actually operate at some point along the line BAC (figure 1); i.e. on the boundary of its feasible set.

Price adjustment ensures that point A in figure 2 will be the one where the market is in equilibrium and moreover that it will be attained by society.

This picture is one of desired magnitudes and given the Walrasian system of tatonnement these desired magnitudes will be realised. In particular, if the market is for total output in the economy (as I shall henceforth assume it to be) the equilibrium of (P_1, Q_1) at A implies that households earn income $P_1 Q_1$ in some other market (say the labour market). The Walrasian system, making tacit use of Say's law of markets, inherently states that the hyperbolic (*) constraint imposed on the market intersects exactly at

- *1 If current income is Y and households are on their budget constraints (presuming that $\sum_i p_i x_i = P_1 Q_1$ after aggregation, P_1 and Q_1 are individual prices and the associated goods) then

$$\sum_i p_i x_i = Y_0 = P_1 Q_1$$

This gives a hyperbolic relationship describing the locus of feasible price-quantity combinations.

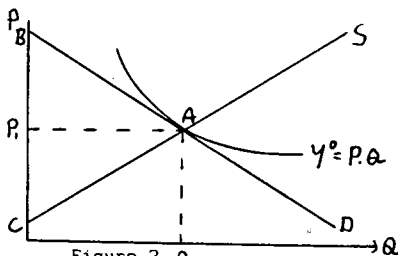


Figure 2. Q_1

Because of Say's Law it would intersect at point A (i.e. output Q_1 at price P_1 generates income Y which must equal $P_1 \times Q_1$).

Clearly, at A it leaves the feasible area unaffected. This is the basis for independence between markets.

A in figure 2 and therefore has no effect on the outcome in the market for current output. This independence between markets is ensured in the model by the tatonnement process.

In this model any deviation from equilibrium will be offset by price changes which respond to excess demands and which are instantaneous. These self-correcting forces are crucial to the general equilibrium model.

It is clear that either wage/price rigidity or the existence of an extra constraint in the market for current output might jeopardise attainment of equilibrium.

The Dual Decision Hypothesis

Clover presupposes that aggregate output has fallen in the model discussed above and shows that the self-correcting forces may not work as predicted. Keynes's attempt to do this had previously been represented by the Neoclassical synthesis as an assertion that wage/price rigidity was the factor which prevents the market forces (i.e. price and wage movements) from leading to an equilibrium outcome. The Neoclassical synthesis, in this light, regarded Keynes's theory as being a special case of rigid prices and wages and thus concluded that Keynes's contribution made no great advance in Economic Theory.

Clover reinterprets Keynes's theory as being an attack not on price/wage flexibility but rather on the constraint structure of the market for current output as outlined above. His argument proceeds as follows.

Output has fallen and so employers now employ less people than before (*1) and thus, in the aggregate, the income of households has also fallen so that expenditure of $P_1 Q_1$ (in figure 2) by households is no longer feasible. The reduction in their income now means that the hyperbolic constraint of realised income is below that of planned income and no longer intersects at A. Thus realised income imposes an extra constraint on the market.

We now have two market pictures, a notional or planned state of affairs and an actual or realised one. The former satisfies Say's law but the latter

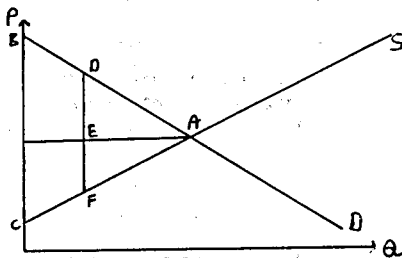


Figure 3

does not. Thus Clover's analysis also suggests an examination of the differences between a monetary versus a barter economy and in particular questions the Walrasian assumption that money is just like any other good. In the barter economy, because goods trade for goods, all excess demands constitute effective market signals because they are backed up by ability to pay (i.e. householders get paid in the goods they produce so there is no uncertainty facing the firm about sales).

*1 It might be the case that people just work fewer hours. This would result from a leisure-income trade-off where employees face a lower wage. In reality, however, it is generally assumed that the number of people employed is all.

Thus a quantity variable, i.e. income, enters the model for the first time as an independent variable. In terms of the constraints in the market place we note (figure 3) that the feasible set has been reduced. (*1) This reduction is such that the full-employment-equilibrium position in the commodity market is no longer attainable and so output and income are at a lower level, along the line DF in figure 3, where there is a quasi-equilibrium and price is bounded but not uniquely determined. It is appropriate at this juncture to mention the contribution of Patinkin which partly inspired Clover's work and which is analytically similar to Clover. Barro and Grossman (1971) note

"Patinkin's model involves profit maximisation subject to an output constraint, whereas Clover's model involves utility maximisation subject to an employment constraint."

Clover is concerned to explain the effects in the output market of results in the labour market whereas Patinkin traces the effect in the opposite direction (Patinkin's model is different in so far as full employment is reached because, he contends, notional excess demands constitute market signals that are effective). A model incorporating both these inter-connections between goods and labour markets would possibly be subject to a deviation amplifying effect whereby a shock in one market would create a number of "reflections" making the total effect greater and countering any

self correcting forces that might be present. (*2)

This is a quasi-equilibrium involving effective demands consistent with the existence of unemployment.

Implications

Clover's model gives the same results (or many of them) that Keynes tried to show in writing General Theory without resort to the assumption of downwardly rigid wages etc. Within an orthodox framework he has amended its theory of household behaviour by making it a dual theory and consequently reconciled differing views on Keynes's contribution to Economics.

In particular the following points are of interest:

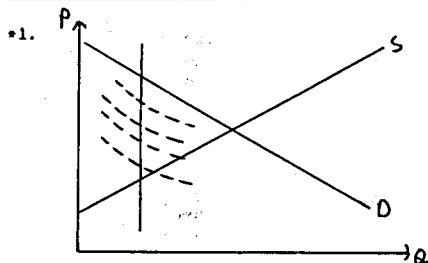


Figure 4

The reduced area of the feasible set should not be perceived as a leftward shift in the hyperbola in figure 2. Instead, the new constraint is a straight line locus of hyperbola points because in the region DEF price variations do not affect output or employment and therefore income is constant so the hyperbola just shifts along the DEF line.

- *2. Clover also postulated a wealth effect whereby the decreased income, if perceived to be permanent, would decrease aggregate demand further because lifetime wealth (expected) has fallen.

- (a) Clover's theory emphasises the restriction placed on the purchase of current output by disposable or realised income. Whereas beforehand the Keynesian consumption function was an "illegitimate" offspring of general equilibrium theorising (because a quantity entered as an independent variable) Clover's modification makes it (at best) legitimate or at worst explicable depending on the extent with which one agrees with him. He has explicated the consumption function in a manner different from previous treatments, thus adding a new insight to the income constrained process, which, by being developed in a theoretical mode, assumes a new gravity in economic theory. This hitherto theoretically bastard device now claims parenthood which must be challenged or else the claims accepted.
- (b) The hypothesis does not depend on rigid wages and prices. Indeed it predicts that policies designed to raise output and employment via wage and price deregulation/manipulation will be ineffective. The most effective type of policy would appear to be one aimed at incomes (i.e. fiscal policy) thereby creating the Keynesian "multiplier" effect.
- (c) The hypothesis is consistent with a stable involuntary unemployment equilibrium as noted above.

Apart from this the hypothesis has the advantage of (a) being micro based and (b) not depending on rigidities in the traditional model. Thus the classical picture of full employment is one of the two sides of Clover's coin where notional demands and supplies are exactly realised and Walras's Law holds. The fact that he includes this possibility makes Clover's case a more general one which includes the classical theory as a special case.

It is on the basis of these findings that Clover can say

"Keynes either had a dual decision hypothesis at the back of his mind, or most of the General Theory is theoretical nonsense."

Clover explains Keynes very well and fits his analysis in with traditional methods in such a way as to make it less a controversial and a more acceptable approach. Whether he interpreted Keynes correctly is not so clear; especially as the dual decision hypothesis is not perfect.

Limitations and Problems and Extensions

In this discussion, limitations of two types are considered, those concerned with the merits of the hypothesis itself or concerned with its relevance to General Theory. Because they are so interlinked in places I shall take them together although both aspects may not always be relevant to the discussion.

Firstly, the issue has been raised concerning the origin of the initial shock which causes output to fall in the model. However, in the light of work by Alchian and indeed Keynes's Chapter 12 in General Theory on the state of expectations, it is possible to see the ease with which a shock may cause a setback to output.

The second criticism is based on the abandonment of the Walrasian equilibrium which Clover himself says he wishes to do. This presents two inconsistencies within Clover's model.

Firstly, because the hypothesis implicitly rejects the traditional theories on information and co-ordination within the economy, we are no longer

dealing with a purely flow model (like the Walrasian one). Because of uncertainty and information problems stocks must be a feature of the economy represented by Clover's model yet they are not dealt with. (*1) Secondly, because trading occurs at non-equilibrium prices we get false trading (a la Hicks). False trading can have serious effects if distributional factors are significant. Leijonhufvud (1967) notes that Clover deals with trades which do not occur as a result of false prices yet it is significant that he omits discussion of those trades that do take place. However despite the absence from Clover's work of these issues, I do not believe that they affect the import of his hypothesis. Perhaps Clover is to be congratulated for not becoming bogged down in non-central issues which might have distracted attention from, without diminishing the substance of, his main innovation.

The third criticism is related to the framework within which the analysis is couched. The fact that it is an attack on Walrasian theories would seem to make the latter unsuitable as a basis for Clover's hypothesis. It might be argued that Keynes did not have a dual decision hypothesis at the back of his mind and that Clover's article is merely a Keynesian aided and inspired insight into Classical or Neoclassical economics which serves to make it more palatable to both Keynesians and Classicists. As an example we might look at figure 3 once more. A quasi-equilibrium at point E, say, shows that households are off their demand curves. Patinkin would say that BDEF is a new demand curve and so describes the behaviour of households better than the old one (BDA). Clover seems to be obscure on this issue but perhaps this is due to differences in their approaches. However it could be contended that Keynes's impression of point A would be that agents are not on their demand curves, which are irrelevant anyway because they are based on unrealistic assumptions about individuals and their behaviour. Keynes may therefore have been attacking the basic postulates of microeconomic theory.

This model by Clover is set in a framework which presumes perfect competition, which in turn presumes perfect information, which itself is a crucial part of Clover's analysis by virtue of being absent. Perhaps Keynes's contribution ought to be re-evaluated in a model characterised by monopolistic competition and imperfect information. Agents would be price-makers and the theory would describe the actual practice of price setting very well. I mention this suggestion not as an aspiration I cherish deeply but simply to make the point that Clover's model, while it explains Keynes very well, would appear to be conceptually different. Keynes constantly cites psychological and behavioural theories to support his argument, thus suggesting he was making a more fundamental attack on traditional economics than Clover supposes. (*2)

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- *1. As demand contracts the initial effect would be an accumulation of stocks in inventory. However, producers, sensing the permanency of the sales constraint would reduce output and an expansion in stocks of human capital would ensue, accompanied by an abatement of inventory stocks. Clover reaches the final stages without dealing with the adjustment or its possible effects.
 - *2. Of course, the Neo-classical or Walrasian framework was only formulated after General Theory starting with Hicks (1939). However Keynes very carefully and with a certain amount of determination avoids using an analytical framework preferring to use words rather than other generalising symbols. His theory is often considered "obscure" on this account by those practiced in orthodox techniques.

On one final point it is interesting to note that in General Theory Keynes avoids using a price index or a measure of income. In Chapter 4 of General Theory Keynes notes three perplexities which most impeded his progress in writing the book. He lists them as

"firstly, the choice of the units of quantity appropriate to the problems of the economic system as a whole; secondly, the part played by expectation in economic analysis; and thirdly, the definition of income." (G.T. p 37)

Conclusions

In Chapter 1 of General Theory Keynes writes

"I shall argue that the postulates of the classical theory are applicable to a special case only and not to the general case, the situation which it assumes being a limiting point of the possible positions of equilibrium."

In view of this statement and the fact that Keynes regarded his consumption function as crucial, Clover would appear, at first glance, to have done a great service to Keynes's ideas by making the latter's ideas clear in a standard framework.

However, it might also be argued that this very framework which involved maximisation by agents and generalisations about human behaviour is what Keynes sought to overthrow.

The fact that Clover has made no fundamental challenges to the basic framework has led to his theory being more readily accepted by the economics profession, most of whose training was conducted in this paradigm of thought.

The dual decision hypothesis is also acceptable because it resolves, fairly well, a dispute in Economics, namely that of "Keynes versus the Classics" by establishing a general, micro-economic based theory of how an economy works, which is "Keynesian" on the one hand and "Neoclassical" on the other. However, endorsement of his hypothesis on the basis of a "best-yet" reconciliation is not proposed here. Rather, it is the case that Clover has made a novel, innovative and enlightening contribution to economics, which, albeit not Keynesian (I contend), is highly appealing and acceptable on its own merits.

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