

THE MODIFIED GENERAL EQUILIBRIUM APPROACH TO KEYNESIAN ECONOMICS

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In this especially timely and relevant essay, Graeme O'Meara analyses Keynesian economics through its departures from classical general equilibrium theory. The paper discusses the notion that Keynes' ideas exposed three major failings in the classical theory: the Walrasian auctioneer approach, a refusal to account for informational deficiencies, and the insistence on exclusively equilibrium-based theory. He concludes that perhaps the search for more rigorous, mathematical and micro-founded theory than that of Keynes has done macroeconomics more harm than good.

Introduction

John Maynard Keynes' 'General Theory of Employment, Interest and Money' (1936) is considered by many to be the one of the most profound contributions to economic thought. Notwithstanding the early contributions of such maestros as Petty, Law, Cantillon and Hume on what would now be classified as macroeconomic issues, the birth of modern macroeconomics as a coherent and systematic approach to aggregate economic phenomena can be traced to the publication of the *General Theory* (Snowdon and Vane, 2005). For decades following its publication, it ignited great debate and controversy amongst economists and policymakers. Keynes' objective upon retreating 'into his ivory tower at King's, was to embark on a supreme intellectual effort to save Western civilisation from the engulfing tide of barbarism which economic collapse was bringing about.' (Skidelsky: 1992: xxvii) This entailed a revamping of the orthodox economic theory, the postulates of which were applicable 'to a special case only and not to the general case' (1936: 3). In the 'long struggle for escape' Keynes set out to liberate economists from the intellectual confines that left them unable to deal with the Great Depression; confines created for the most part by what Keynes dubbed 'classical economics.'

However, the lack of precision and use of mathematical appliances to clarify his ideas would leave Keynes' tour de force susceptible to multiple interpretations. The most prominent interpretation was that initiated by Sir John Hicks (1937), which led to the renowned 'Income-Expenditure' model. This was later modified and extended by Modiglianni (1944), Samuelson (1948), Klein (1947) and Hansen (1953) which led to Keynesian economics being associated with such building blocks as the multiplier, the consumption function, liquidity preference theory and the marginal efficiency of capital. The ongoing debate between Keynes and the Classics was finally reconciled in the Neoclassical Synthesis, a truce which placed the *General Theory* as a special case of classical theory with restrictive assumptions on the latter, while maintaining that this Keynesian special case was nonetheless important as it was more relevant to the real world than general equilibrium theory (Leijonhufvud, 1967). This fusion of ideas proved unsatisfactory for subsequent scholars in what emerged as a counter attack on the Keynesian revolution, which strived to re-establish Keynes as an academic professional and theoretical innovator in his own right. In what Coddington (1983) brands as 'reconstituted reductionists,' Robert W. Clower (1965) and Axel Leijonhufvud (1968) reaffirm Keynes as a theorist engaged in the dynamics of disequilibrium processes. In this paper, I review and reappraise the work of the aforementioned scholars by highlighting what they perceived to be the true essence of the *General Theory*.

Reconstituted Reductionism

Classical theory analyses markets on the basis of choices made by individual traders, with the resultant theory operating at the level of individual choice and market phenomena; Coddington (1983) refers to this as 'reductionism,' the act of reducing market phenomena to (stylised) individual choices. Reductionist theorising confines its focus to situations of market equilibrium¹, a situation which makes choice theory relatively straightforward: there may be a gap between market demand and market supply, but the choice theory from which these respective schedules have been derived presumes all choices are realisable (Coddington, 1983). The work of Clower (1965) and Leijonhufvud (1968) established Keynesianism is a type of 'reconstituted reductionism' because it addresses not the problem of equilibrium, but the issue of attain-

¹ Fundamentalist Keynesian Joan Robinson (1953-4) suggests that if the idea of equilibrium is followed relentlessly, then as the concept becomes all embracing, it becomes paralysed by its own logic: equilibrium becomes a state of affairs strictly unapproachable – unless it already exists, there is no way of altering it. (Coddington, 1983)

ing it. It poses the dilemma of how a decentralised market economy can, in the absence of the Walrasian auctioneer, generate an equilibrium vector of prices that clears all markets. To make the transition from Walras' world to Keynes world, the tâtonnement mechanism must be dispensed with and the auctioneer made redundant. Transactors have to become price makers and the control mechanism that prohibited sub optimal trades is no longer in force, since non-equilibrium prices may become established. Choice logic remains the same however – maximisation of utility and profit and belief in the untrammelled workings of the price mechanism as a coordinating device. 'To be a Keynesian, one need only realise the difficulties of finding the market clearing vector.' (Leijonhufvud: 1967: 405)

The Keynesian Counter Revolution

Clower (1965) reignited the old 'Keynes and the Classics' debate by exposing theoretical flaws within the Keynesian revolution, and more generally in economic theory. Keynes challenged the Classics inter alia on two counts: firstly, its failure to recognise involuntary unemployment: 'if the classical theory is only applicable to the case of full employment, it is fallacious to apply it to the problems of involuntary unemployment,' (1936: 16)² and secondly, its unequivocal reliance on Walras' Law and the fictional auctioneer as the coordinator of economic activity. Clower proposed an ultimatum by inferring that 'either Walras' Law is incompatible with Keynesian economics, or Keynes had nothing fundamentally new to add to orthodox economic theory.' (1965: 278) If Walras' Law is compatible with Keynes, then 'literature on monetary theory makes it perfectly evident that Keynes may be subsumed as a special case of the Hicks-Lange-Patinkin theory of tâtonnement economics' (1965:279) which confirms that Keynes added nothing new to the existing orthodoxy. Alternatively, if Walras' Law is discordant with Keynesian economics, then the established theory of household behaviour was incompatible with Keynes; this would mean that in the general case, there exist market excess demand functions that include prices and quantities that would not satisfy Walras' Law, except in cases of full employment. (Clower, 1965)

Clower argued the latter case, claiming that there has been a 'fundamental misunderstanding of the formal basis of the Keynesian revolution' (1965:280) by pointing out that traditional price theory assumes market excess demands are independent of current market transactions, which would imply that income magnitudes are not independent variables in the demand or supply functions of a general equilibrium model; they are choice variables

2 With humorous reference to Euclidean geometers in a non Euclidean world.

for maximisation. Incomes are denoted in quantities and prices, and quantity variables never appear explicitly in market excess demand functions of traditional theory. This would then imply the Keynesian consumption function (which depends on disposable current income) and other market relations involving income as an independent variable cannot be derived explicitly from any existing theory of general equilibrium.

Notional v. Effective Demand

Clower (1965) was the first to draw the distinction between realised (effective) and planned (notional) magnitudes. Notional supply/demand refers to transactions that transactors would exercise at equilibrium prices, conditional on being unconstrained by an inability to buy or sell at the prevailing prices in any other market. Effective magnitudes refer to actual supply/demand backed up by an ability to pay. Notional and effective magnitudes are equal when actual transactions are unconstrained by actual transactions in another market. For Clower, his notional demand for champagne is his effective demand once he can sell as much of his economic consulting services as he desires. However, if he is constrained in selling his consulting services in the labour market, his subsequent fall in income will result in a curtailed effective demand for champagne, below that of his notional demand: 'the other side of involuntary unemployment would seem to be involuntary under-consumption.' (Leijonhufvud: 1968: 69) In such a world as this, the decision to sell is not automatically transformed into a decision to buy, since the sale has first to be realised before a purchase is made; this is the essence of Clower's 'dual decision hypothesis': planned (notional) purchases will not be made unless planned sales have been realised (made effective) (Snowdon et al, 1994). Clower's income appears as an argument in his effective champagne demand function, contrary to the notional demand (and supply) functions of the Walrasian system which posits that incomes do not appear along with prices as independent variables. In Walras' world, transactors are constrained by money wages and prices, and given these constraints, they choose how much they desire to work and consume; in equilibrium, they are able to perform their desired level of labour and receive chosen their income. Clower maintains that Keynes added an additional constraint whereby transactors may be constrained in the level of labour they are able to sell, causing actual income to diverge from desired income.

When transactors are constrained in one market, this is likely to generate an 'income constrained process,' whereby as false prices constrain sales and production of certain commodities, their producers suffer income

cuts and find their effective demands reduced, hurting other sectors, and so invoking a ripple effect throughout the economy (Leijonhufvud, 1968). A contagion breaks out where a drop in production in the sector first thrown out of equilibrium spawns a drop in real buying power and in the real demand for outputs of other sectors and so on (Rabin, 2004). The bursting of the Irish property bubble in 2007 presents a fine example of this ripple effect: transactors involved in this sector ‘felt the pinch’ when demand for property related goods and services (construction, architecture, finance, landowners, raw materials manufacturers etc) dried up, which cumulatively pushed the Irish economy into recession.

Thus, from a disturbance to the economy, there ensues a downward spiral of income, far below the level to which it was brought by the initial shock; ‘this deviation amplifying feedback loop is characteristic of Keynesian quantity adjustment models.’ (Leijonhufvud: 1968: 53) Leijonhufvud argues that once deviation-amplifying feedbacks take hold, the deviation-counteracting price adjustments will be less effective; because of the downward spiral of income, prices will need to fall below the new equilibrium price to jolt the system back toward full employment. Only in instances of perfectly flexible prices would income constrained processes be nonexistent.

Clower maintains that the demand functions of orthodox theory do not provide relevant market signals, because they do not distinguish between effective and notional demands by incorporating into the theory the constraint effective current receipts may place upon notional current consumption. Put simply, Keynes brings current transactions and the effect of constraints on realised transactions into price theory, where traditional theory leaves it out. And while general equilibrium theory is a useful instrument for thinking about abstract economic problems, the danger, in having ‘schooled ourselves so thoroughly in the virtues of elegant simplicity (is that) we may refuse to recognise the crucial relevance of complications that do not fit our theoretical preconceptions.’ (Clower: 1965: 295) This serves as a reminder of the recent controversy in macroeconomics of shaping circumstances around models:

"Economists can become seduced by their models, fooling themselves that what the model leaves out does not matter. It is, for example, often convenient to assume that markets are “complete”—that a price exists today, for every good, at every date, in every contingency. In this world, you can always borrow as much as you want at the going rate, and you can always sell as much as you want at the going rate. "

(The Economist, 2009)

Unemployment Disequilibrium

The reaction of real output and employment to fluctuations in the money rate of aggregate demand is a problem of short run dynamics; in the literature much of the analysis starts at a full employment equilibrium and then scrutinises the adjustment after the disturbance. Leijonhufvud (1968) examines the nature of the disequilibrium situation at some point within the time interval before returning to equilibrium. Despite using comparative static period analysis (which reflected Marshallian overtones), Leijonhufvud believes that 'Keynes' model was static, but his theory dynamic.' (1968: 62) Fundamental Keynesian³ G.L.S. Shackle expresses this proposition with characteristic elegance:

"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."

(1967: 182)

Classical economic theory asserts that adjustments to changes in money expenditure (aggregate demand) will be via price adjustment, i.e. the benevolent brewer will likely adjust his prices in response to fluctuations in the demand for beer. This fall in prices would then eradicate the reduction in aggregate demand via the Pigou effect. However, in the Keynesian macrosystem, the Marshallian ranking of price and quantity adjustment velocities is reversed; in the shortest period, flow quantities are freely variable, but one or more prices are given, which limits the range of variation for the rest of the prices (Leijonhufvud, 1968). Thus, quantity adjustment is a synonym for a change in real income. In Keynes' world, trade continues at disequilibrium prices, so that changes in the quantity exchanged at these disequilibrium prices are the significant sources of adjustment. Prices are not rigid because of the assumption of complete price rigidity, but from the assumption that trade continues at disequilibrium prices. Transactors establish reservation prices for their labour (and commodities) and in the face of an information deficiency they search for the best price they can get based on past experience. For Leijonhufvud, this reversal of adjustment velocities was the revolutionary innovation in the *General Theory* and is comprehensible only in light of how deeply entrenched Marshallian dynamics were in the thinking of Keynes'

³ Fundamentalists regard the influence of unstable expectations due to uncertainty as a key element of Keynes' work, pointing to chapters 12 and 17 of the *General Theory* and to an article Keynes wrote in 1937 to reinforce this approach.

contemporaries.

Much of the preceding analysis can be illustrated graphically (albeit with the use of hydraulic Keynesian apparatus) in Figure 1: suppose there is a market-clearing vector of prices such that we are at a point of general equilibrium. A disturbance, for example in the form of a pessimistic revision of businessmen's expectations, would reduce investment: the IS curve shifts to IS_1 . The archetypal producer-employer has less than perfect information in that he is uncertain as to whether this endogenous shift in demand is specific to his product or economy wide, temporary or permanent. In trying to determine these factors, it may be rational to leave price unaltered in the meantime; until information to the contrary presents itself, he may contend that the prevailing price for his bottle of champagne is the right one. The producer's initial response is to leave price unchanged and adjust quantities: this reduction in output will result in a fall in labour demand via the production function. However, this does not guarantee a shift of the labour demand curve; instead actual (effective) demand lies off the curve, and as no change in prices or wage rates have occurred, the real wage rate remains at original level and so the labour market is in disequilibrium at A. This illustrates Clower's distinction between notional and effective magnitudes: at output Y/P_1 effective demand for labour is only N_1 , the discrepancy being the difference between notional N_f and effective demand. For an economy not in general equilibrium, the price mechanism does not convey the information to restore full employment. In the absence of perfect knowledge, the prescription of infinite price velocity disappears. For Keynes, trade continues at disequilibrium prices, so that changes in quantity exchanged at these disequilibrium prices are the significant sources of adjustment.

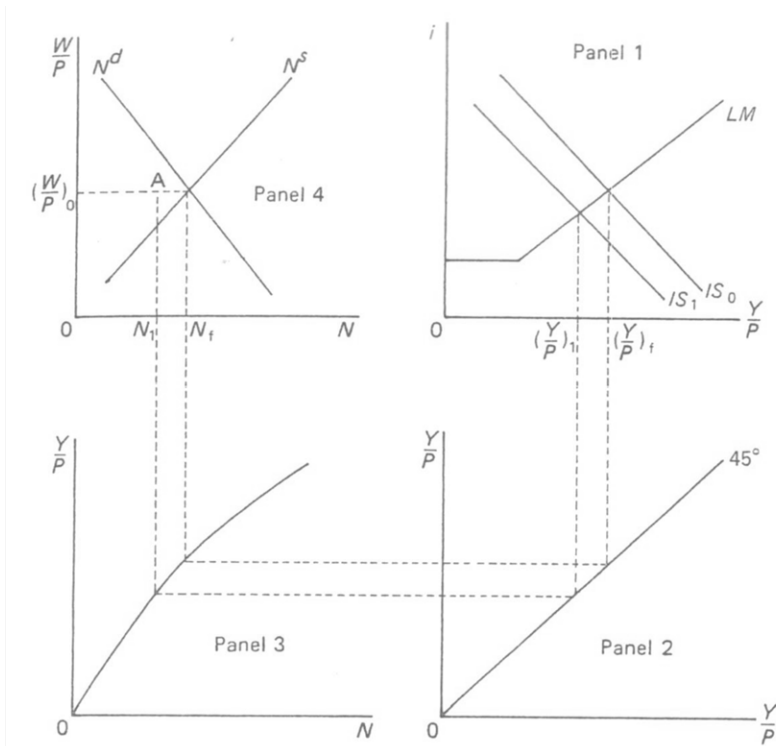


Figure 1: Unemployment from deficiency of effective demand (extracted from Pierce and Tysome, 1985)

Textual Evidence

In chapter three of the *General Theory*, Keynes explicates his principle of effective demand, that is, the point at which the aggregate demand function intersects the aggregate supply function, where entrepreneurs expectations of profits and so employment is maximised. There is however, no evidence of a principle of notional demand. And although Clower finds little textual evidence of a dual decision hypothesis in Keynes’ writings, he claims that indirect evidence is plentiful: Keynes’ treatment of the orthodox theory governing household behaviour, discussions of Say’s Law, the consumption function concept, his account of interest theory and discussions of wage and price determination. Clower advocates also that unless the orthodox theory of household behaviour is modified to recognise the dual decision hypothesis, the aggregate consumption function does not make sense, the distinction

between transactions and speculative balances is meaningless, the liquidity preference theory of interest is indistinguishable from the classical theory of loanable funds and excess supply in the labour market will not diminish effective excess demand elsewhere in the economy. 'In short, either Keynes had a dual decision hypothesis at the back of his mind, or most of the *General Theory* is theoretical nonsense.' (Clower: 1965: 290) This type of reasoning led Coddington to comment:

"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."

(1983: 106)

It is interesting to note also that Walras is mentioned only once in the *General Theory* (Ch. 14: 'The Classical Theory of Interest' pp.176) and the Walrasian system was a post-Keynes product. Leijonhufvud (1976) later contends that Keynes' struggle to escape was from the Cambridge of Marshall and Pigou, whilst his and Clower's aim was to debunk elements of Walras to re-establish Keynes' message. In this respect, the arguments of Clower and Leijonhufvud are only really addressed to the neoclassical synthesis debate; they tell us very little about the actual Keynes episode, since they fail to separate the economics of the classics from the classical economics fictions created after Keynes (Snowdon et. al, 1994). However, in a comment on a paper by Leland B. Yeager concerning monetary disequilibrium, Leijonhufvud (1986) retorted Yeager's criticism of his and Clower's interpretation of Keynes by stating that:

"Now, although "what Keynes really meant" is not at all as good and useful a question as, for instance, "could macroeconomics have evolved along a more fruitful path from the *General Theory*," it so happens that on these particular points we now do know precisely what he meant. Volume 29 of Keynes's *Collected Papers*, which appeared only in 1979, contains outlines and drafts of introductory chapters (pp. 63—102) that Keynes eventually discarded in favour of his brief and cryptic chapter 2. This material leaves absolutely no doubt whatsoever that the conceptual experiment of Keynes's analysis was exactly that which Clower and I have attributed to him."

(1986: 415)

Here, Leijonhufvud is referring to the discovery of some unpublished manuscripts of Keynes' writings found in the famous 'Tilton laundry basket' when Lady Keynes was vacating the Tilton estate during the winter of 1975-76. In these draft pages, Keynes contrasts a cooperative economy (where labour is exchanged for goods, in which case a deficiency of effective demand is impossible) and an entrepreneur economy (where goods are exchanged for money, which would permit effective demand deficiencies and involuntary unemployment) (Yeager, 1988). While Leijonhufvud purports this to be clear evidence, Yeager maintains that if Keynes had a theory of incoordination 'at the back of his head he had it only in a fuzzy, rudimentary fashion' (1988:207) and attaches little importance to these pages since 'the fact that he wrote certain ideas down, considered them, and then *discarded* them would suggest that they were *not* what he meant.' (1988:207) Thus, it is not clear, nor will it ever be, whether the reinterpretation put forward by Clower and Leijonhufvud aligns with what Keynes really meant or pointed towards.

Conclusion

The work of Clower and Leijonhufvud, in attempting to expose Keynes as a true theoretician, was a response to the state of macroeconomics in the 1960s, which saw a rift appearing between micro and macro, with the latter lacking clear micro foundations upon which to base its conjectures. Clower first proposed the 'dual decision' process, which dissolved the simplistic market clearing ideology of the Walrasian auctioneer, and the process of *tâtonnement*. Leijonhufvud, in following this line of thought, emphasised quantity adjustment to demand driven disturbances and perceived the *General Theory* as a dynamic theory of disequilibrium. Leijonhufvud attributes involuntary unemployment to the information deficiency transactors encounter in the face of a demand disturbance, triggering income constrained processes and a multiplier effect.

While textual evidence for this interpretation is ambivalent, it inspired a new generation of economists with no stake in the orthodox IS-LM approach to follow a disequilibrium route to macroeconomics. Researchers such as the widely cited Barro and Grossman (1971) and Malinvaud (1977) reconsidered the theory of unemployment in terms of rationing models within a framework of the macroeconomics of non-clearing markets. This path of analysis was then intercepted by the rational expectations revolution and the emergence of New Classical economics perpetrated by Robert E. Lucas. In light of the recent turmoil in the global economy, it is rather unfortunate that disequilibrium theorising lost its fervour, as perhaps this may have pre-

vented the rigorous mathematization of economics and the ascendance of models proclaiming rationality into policy circles. As capitalism implodes once again, perhaps it is time to rejuvenate Keynesian ideas and shake off, once again, the classical doctrines that continue to pervade our thoughts.

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