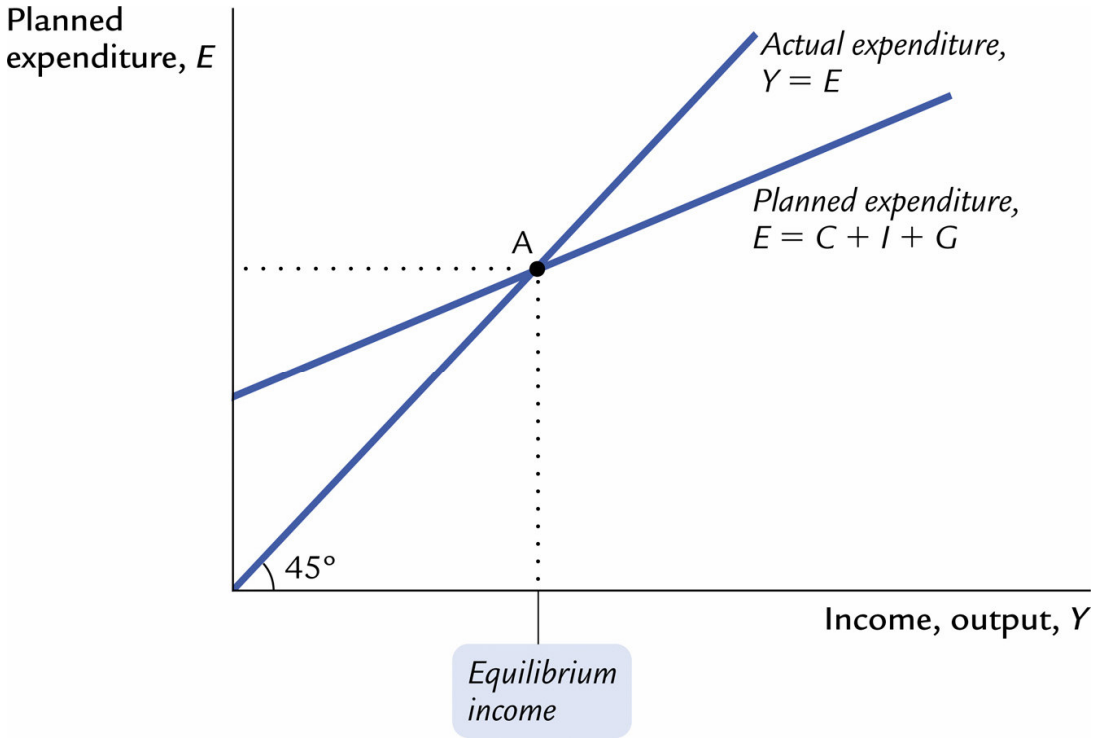
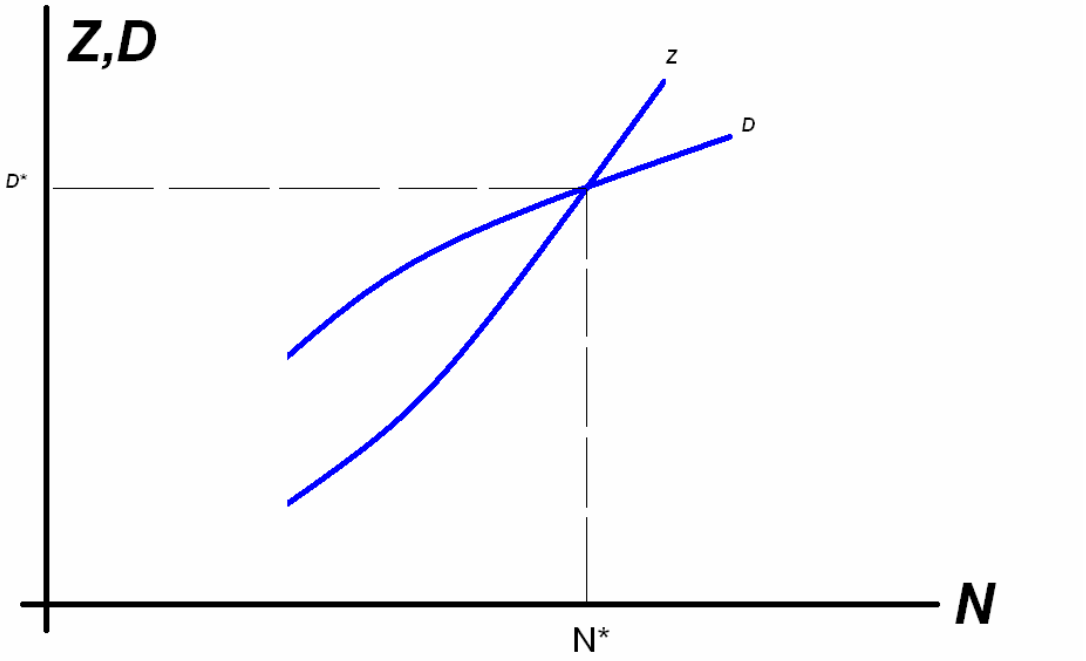
The question you will have, of course, and that I need to address, is why you should read my book 'The Economics of Keynes: A New Guide to *The General Theory*'. Since policy implications are what ultimately interests most of us, I am strongly tempted to jump straight to my views on the role of money in the generation of inflation, and on the obstacle to full employment presented by the nature of corporate property rights. However, these views emerge only in the Epilogue to my book, at the conclusion of a novel and probably controversial reading of *The General Theory*, and I am afraid that they would strike you as no more than assertions without the benefit of the full argument. That would take a course of lectures, not a brief talk.

So I have decided to concentrate today on making one particular point of theory, and thereby drawing out the distinctive features of my reading of Keynes. I have set out on page 1 of my book (which is on the hand-out) five propositions of *The General Theory* as I read it. These propositions are expanded in my Prologue and inform my perspective throughout the book. Even these propositions will probably seem odd without detailed explanation, and I cannot hope to cover them all today. Instead, I shall concentrate on the nature of the equilibrium represented by the point of effective demand. That is the main focus of the first proposition, although you will see how some of the others come into it as we proceed.



We are all familiar with the Old Keynesian cross (SLIDE) and the conception of effective demand as the equilibrium income corresponding to the fulfilment of short-term expectations. In the Post Keynesian tradition, the Keynesian cross is restated as the Z diagram. I want to argue that although the Post Keynesian Z diagram is far more faithful to *The General Theory* than the Keynesian cross, it is still only half-way towards capturing Keynes's principle of effective demand. The point of effective demand as set out by Keynes is best understood, I suggest, as what we would now call a short-term rational expectations equilibrium. I would like to emphasise the adjective 'short-term', since it is the impossibility of long-term rational expectations (where rational here means optimal) that is at the core of *The General Theory*.

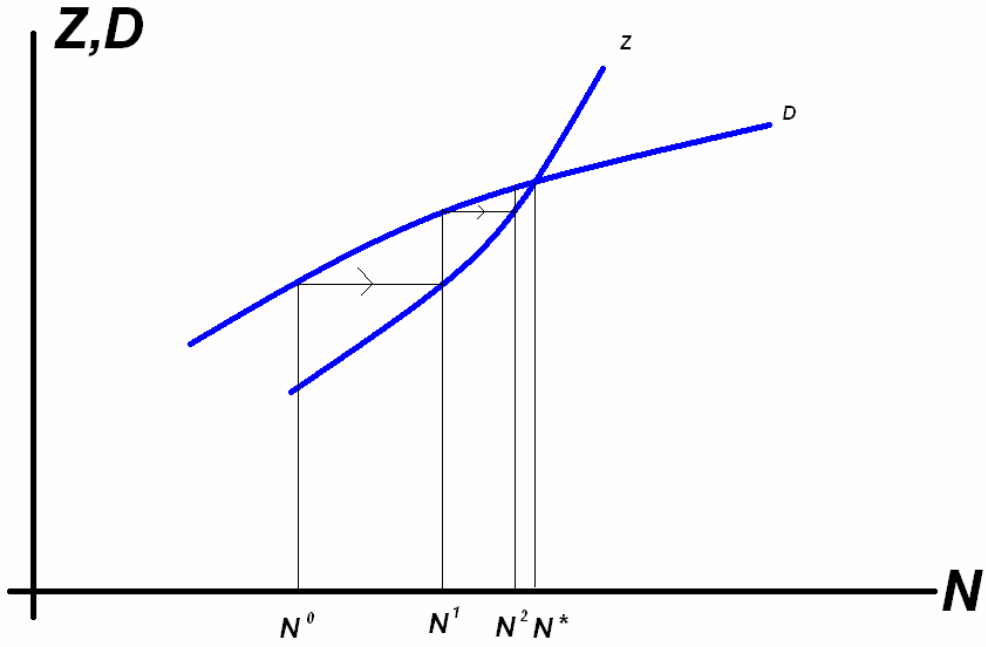


The Z diagram (SLIDE) is a graphical representation of Keynes's *G.T.* Chapter 3 equations with which all Post Keynesians are familiar. The axes of the diagram are employment and expected income, unlike the Keynesian cross which plots output and expenditure. The Z diagram correctly describes the equilibrium position that relates any given level of effective demand to its corresponding level of employment. More problematic is the process of adjustment by which we are supposed to reach the equilibrium position. Keynes writes in Ch. 3:

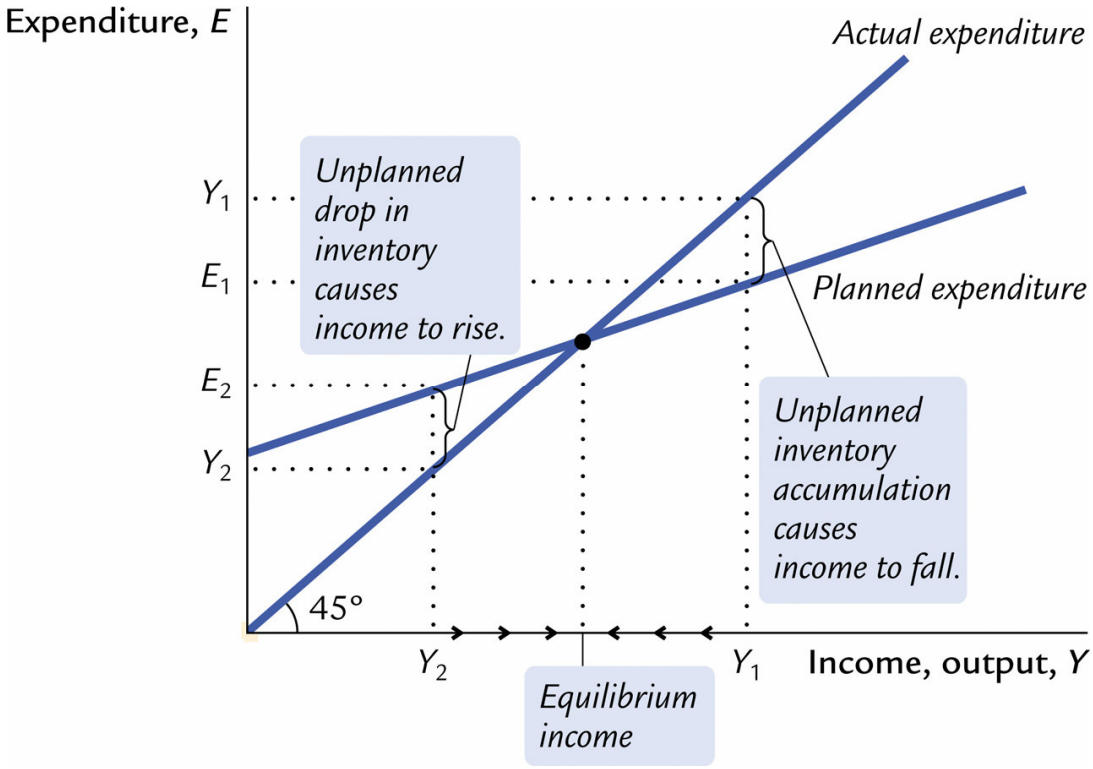
'Now if for a given value of *N* the expected proceeds are greater than the aggregate supply price, i.e. if *D* is greater than *Z*, there will be an incentive to entrepreneurs to

increase employment beyond *N* and, if necessary, to raise costs by competing with one another for the factors of production up to the value of *N* for which *Z* has become equal to *D*. Thus the volume of employment is given by the point of intersection between the aggregate demand function and the aggregate supply function; for it is at this point that the entrepreneurs' expectation of profits will be maximised. The value of *D* at the point of the aggregate demand function, where it is intersected by the aggregate supply function, will be called *the effective demand*.'

Paul Davidson and Alvin Hansen, unlikely bed-fellows, both read this passage as meaning that equilibrium is established over time by the convergence of short-term expectations (SLIDE): if D > Z at any given N, entrepreneurs make windfall profits and have an incentive to increase N *in the next period*, and conversely if D < Z.



The familiar Hansen version is described by *this* SLIDE.



Yet this understanding of the adjustment process described by Keynes in Chapter 3 is fraught with difficulty. First, since it is necessarily a process over time, employment is unlikely to be *in* equilibrium at any given time, so that the point of effective demand is only an attractor or centre of gravitation, just as is claimed for the NeoClassical full employment equilibrium. Second, the Z and D curves can be expected to shift over time, so that the process of convergence may never end or be unstable. Third, how can the aggregate excess demand function be defined as a scalar value, if output is not homogeneous–a point of enormous concern to Keynes, and rightly so? Fourth, if (as I will argue in a moment) effective demand is the present value of the expectation of income arising from a number of processes with different periods of production, there is a dimensional problem: as Keynes puts it in the notes for his 1937 lectures—I quote—there is 'No definite relationship between aggregate effective demand at one time and aggregate income at some later time. This does not matter.' This only does not matter if Keynes has a quite different concept of equilibrium in mind.

Finally, if we go one step further and take Keynes at his word when he claims that *The General Theory* explains the level of employment *at any time*, the process of adjustment to equilibrium described in Chapter 3 must take place instantaneously and continuously. A long series of writers (notably Vicky Chick) have wrestled with this issue and with Keynes's definition of aggregate demand as the proceeds which *entrepreneurs* expect to receive from employment, rather than in terms of the expenditure of consumers and investors, the aggregate demand of Old Keynesian economics. Yet this paradox is already implicit in Marshall's claim that Normal prices, which are prices expected by entrepreneurs *today*, are determined by the equilibrium of *future* supply and demand. How can *expected* prices be determined *today*, at a point in time rather than over time? Vicky Chick has probably taken this argument to its limit, given the standard conception of equilibrium as the fulfilment of expectations, yet even she can only reach a subjective notion of effective demand, which is not how *The General Theory* presents it, or so it seems to me.

I suggest that the problem lies with the consensus of the past 70 years that the point of effective demand is an equilibrium in the sense of the fulfilment of expectations. In fact, it is rather odd that this process is usually expressed using the *ex ante/ex post* analysis, following Hawtrey, Robertson, Hicks and the Swedes, when Keynes explicitly repudiated that approach. He did this in his 1937 lectures, which were not published until 1973—I quote— 'For other economists, I find, lay the whole emphasis, and find the whole explanation in the differences between effective demand and income; and they are so convinced that this is the right course that they do not notice that in my treatment this is *not* so'. And similarly in response to Denis Robertson's review: 'I do *not* remember attributing the disappointment of entrepreneurs to "a divergence between aggregate demand and aggregate supply price". I attribute their failure to produce *more* to this; but their disappointment, if any, I attribute (like you) to a divergence between aggregate demand price *and income'*.

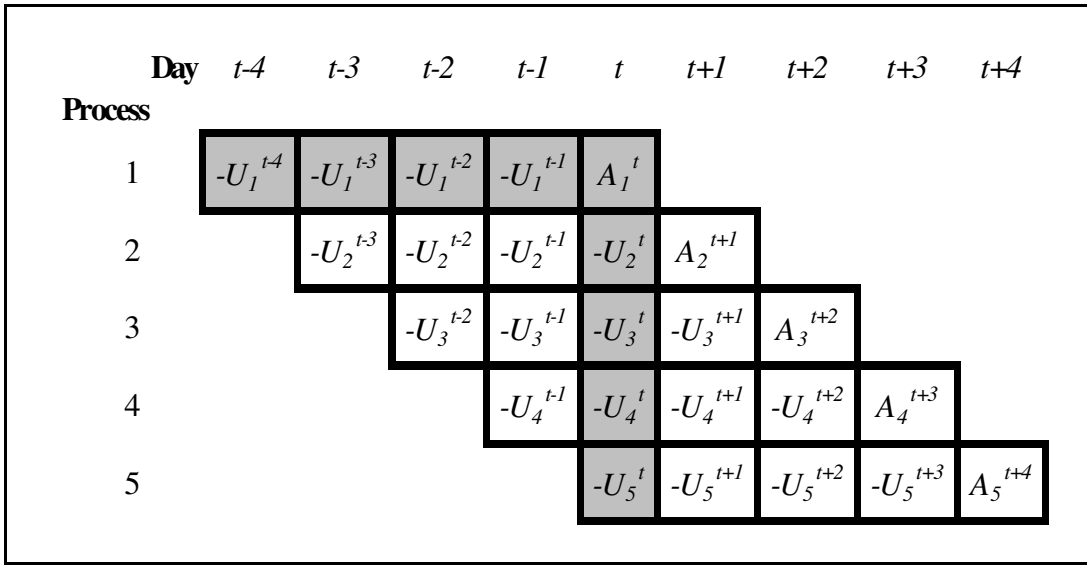
By the mid-1970s when these words were published, the Old Keynesian neoclassical synthesis was in disarray for other reasons, so perhaps it is not surprising that it has taken so long to realise the significance of this problem at its very core, in the Keynesian cross itself, which applies also to the usual exposition of adjustment to equilibrium in the Post Keynesian Z diagram.

So what is the principle of effective demand? I suggest that it is an organic development of Marshall's theory of value and, in moving from the consideration of the *individual* firm and industry to industry as a whole, there is no suggestion by Keynes that competitive supply and demand have ceased to determine the prices and quantities of the products of each industry. Keynes's theory of value remains essentially that of Marshall and Pigou. However, the principle of effective demand solves the problem that supply and demand in each industry depends on the output of industry as a whole, and brings precision to Marshall's claim that *expected* prices, and not only the spot prices of the market period, can realistically be treated as determined by the equilibrium of supply and demand.

Before I try and explain the meaning of effective demand, I must address Keynes's concept of equilibrium and his use of time and equilibrium periods. *The General Theory* is a theory of the equilibrium of industry as a whole at any given point in time, not, as I have said, an equilibrium of expectations, nor a Walrasian full employment equilibrium. It is almost axiomatic for Keynes that in a monetary economy industry as a whole can be in competitive equilibrium without factor markets clearing, since the owners of factors *per se* do not make the hiring or employment decisions, which depend solely on the expectations of entrepreneurs. Industry as a whole reaches equilibrium without reference to whether the owners of factors achieve their preferred allocation. Furthermore, this is a true competitive flex-price equilibrium, not a New Keynesian equilibrium based on rigidities, nor a Hicksian short-run disequilibrium position that revised expectations will correct in the long run. But factor prices, unlike product and asset prices, are not market-clearing equilibrium prices: they are necessarily exogenous to the equilibrium model of employment in a monetary economy. And from that root springs the sticky-wage myth.

The point in time at which the equilibrium of industry as a whole is established is Keynes's day, the shortest interval after which the firm is free to revise its employment decision. This is his quantum unit of calendar time, and it is linked to both the short and the market equilibrium periods of Marshall. Income corresponds to the market-period aspect of the day, and effective demand to the short-period aspect. Income is determined as the market-clearing value of output delivered on any given day. Income is itself an equilibrium value. Employment is also determined each day as a short-period equilibrium value, based on the expectation of future income that

will arise from that employment. This effective demand is also an equilibrium value, but effective demand is not equilibrium income. Crucially, income and effective demand, outcome and expectation, are different because production takes time. Keynes's other unit of time is the production period, the period between starting and finishing an individual production process, a number of days.



This idea of effective demand is more complex and therefore more difficult than the Keynesian cross to represent in a diagram, but the next [SLIDE] —see hand-out— illustrates the central concepts on the assumption that there is one production method which takes five days and is started up each day, so that there are five processes running in parallel at any time, say the construction of five log-cabins. Each cell represents the value of a day's sales or gross output from one process. *A* means finished output, *-U* (for negative user cost) is the addition to work-in-progress. Today's *aggregate income* is given by the L-shaped shaded area, while today's *aggregate effective demand* is represented by the entire grid. Today's income includes both consumption and investment. The value of consumption—one log-cabin delivered to consumers—is the sales value of the first log-cabin after *deducting* the value of the work-in-progress from previous days (together represented by the row of shaded cells). Consumption partly represents new output, and partly the consumption of capital (Keynes's user cost). The value of investment is the addition to the value of the work-in-progress on the other four cabins (the rest of the shaded column), which in this example exactly offsets the capital consumed on the sale of the first log-cabin, so a stationary state. Today's employment depends, not on income, but on effective

demand, the whole grid: the aggregate of the expected final sales values (the *A* cells at the right-most end of each row), the expected cost of the necessary present and future construction work (the remaining cells to the right of, and including, the shaded column), and the value of the inherited capital equipment (all the cells to the left of the shaded column).

The aggregate expected income represented by effective demand, which motivates today's employment, does not correspond to the aggregate income expected on any one future day, but is spread over a number of days. In this diagram, the different dimensions in time of income and effective demand are represented by their different shapes. They can never be made congruent, they cannot be brought into equilibrium with one another as traditionally depicted.

How then is effective demand established as an equilibrium value? Recognising Keynes's definition of aggregate demand in terms of the expectations of entrepreneurs, I think the easiest way to see this is to divide the entrepreneurs into employers and dealers, who take up respectively the supply and demand sides in the forward markets for the final output that will emerge at different dates as a result of today's employment (corresponding to the *A* cells). These forward markets determine today a set of equilibrium prices that correspond to the income expected, over different periods, from today's employment. The aggregate of this expected income is effective demand. Each day employment moves directly to the equilibrium position corresponding to these forward prices (this is the short-period aspect), so that within the quantum limit of the day, employment is in continuous equilibrium. This is of course a rational expectations approach: what Keynes refers to as 'judicious foresight', but a similar result arises, given standard Marshallian assumptions, if short-term expectations are based on trial and error.

The implications of this understanding of effective demand are far-reaching, including not only the distinction between income and effective demand, but the meaning of Keynes's long-period equilibrium, the importance of his neglected concept of user cost, the nature of the multiplier, and the resolution of the loanable funds controversy. The profession should, I submit, formally repudiate the Keynesian cross and the related *ex ante/ex post* analysis. The Post Keynesian Z diagram should be recognised as a fair representation of the equilibrium point of effective demand, with the caveat that it is understood as an entirely Marshallian supply and demand diagram, which

cannot validly be used to describe a dynamic process of convergence in disequilibrium.

I hope by now it is clear that, in my view, the profession has even now yet to come to terms with *The General Theory*, and the responses of ignoring it, or putting forward a caricature of it (however sincere), simply will not do. As Keynes wrote in his 1937 QJE article, the principle of effective demand is one of the two most important ideas in his book, and so it is in my own. The other principal idea is the nature of long-term expectation and the related concept of liquidity, on which I have also put forward novel views, and which I would love to share with you, but alas, my time is limited and therefore I must ask you to read the book!