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The General Theory
of Employment

In the conditions prevailing in contemporary industrialised trading economies, fiscal policy directed towards sustaining prosperity must take into account, amongst other things, the effects of government spending and taxation upon inflation, unemployment and international competitiveness. In these matters Keynes' general theory of employment is potentially a useful tool of analysis. First, by considering supply and demand together it allows the effects of demand-side policies to be distinguished from the effects supply-side policies. At one time demand-side policies may be appropriate, at another supply-side, at yet other times a combination of the two may be needed. Second, by assuming a short-run functional relationship between the volume of output and the amount of employment, the theory of Keynes treats output and employment as a single *dependent* variable. Thus, unlike the earlier 'classical' theory of employment it does not require the assumption of an automatic tendency towards full employment which is manifestly contrary to twentieth century experience. Nor does Keynes' theory require the assumption of an automatic tendency towards some exogenously determined 'natural rate of unemployment', as does contemporary monetarism. Indeed the monetarists' concept of a 'natural rate of unemployment' is not significantly different from the earlier concept of full employment as understood by what Keynes called the

'classical' economists. Third, the theory as formulated by
Keynes is described in terms of expected market prices and
so is relevant to the formulation of counter-inflationary
policies. Fourth, the use of the method of comparative statics
allows for an objective to be set relative to the current state
of an economy on to which the dynamics may be super-
imposed. Finally, as will be argued, developing Keynes'
theory leads to the logical conclusion that to sustain
prosperity and a high level of employment without such
side-effects as accelerating inflation, then government must
find an alternative to taxation as a means of raising public
revenue.

The substance of the theory as formulated by Keynes is
that any competitive economy tends towards a level of
activity determined by the point of intersection of an
aggregate demand function and an aggregate supply func-
tion. The aggregate supply price, Z, of the output of any
given amount of employment, N, is the expectation of
proceeds which will just make it worth the while of firms to
give that amount of employment. The aggregate supply
function, $Z = \Phi(N)$, expresses the relationship between Z
and N. The aggregate demand price, D, is the proceeds
firms expect to receive from the output of any given amount
of employment, N. The aggregate demand function, $D =
f(N)$, expresses the relationship between D and N. When the
value of D is greater than the value of Z firms will have an
incentive to expand and, conversely, when the value of D is
less than the value of Z firms will have an incentive to
contract. Thus, argued Keynes, an economy tends always
towards a level of activity at which the value of D equals the
value of Z. Keynes called the value of D at this point of
intersection 'the effective demand'. However, this is also the
point at which the value of Z equals the value of D and so
with equal validity may be called *the effective supply*. Had
Keynes used the term the effective supply rather than 'the
effective demand', and had he emphasised also 'the point of

true inflation' rather than an alternative term 'full employment' for the point where the aggregate supply price curve becomes vertical (p.25), then the later development and application of his theory may well have been significantly different. He was, of course, a man of his time, and in the 1930's demand and employment were the prime topics.

The Bargaining Mechanism

The concepts of aggregate demand price and aggregate supply price used by Keynes in his general theory of employment are developments in the Marshallian tradition and, therefore, take into account the basic process of bargaining. Any particular bargain is the result of an agreement between two parties and each party expects to gain from the exchange that follows. Bargaining is not a zero sum game. It is the expectation of gain that provides each party with the motivation for the trade. In a monetary economy the party bidding a money sum in exchange for the goods and/or services on offer is called, by convention, the buyer. The party offering goods and/or services in exchange for a money sum is called the seller. The money sum the buyer agrees to pay the seller is called the price.

As measured by the price, the point at which any particular bargain may be struck is confined within certain limits. The top limit, beyond which the price cannot rise, is determined by the buyer, who will have in mind a certain money sum in excess of which he is not prepared to strike a bargain with the seller for the goods and/or services on offer. At the top limit the buyer is indifferent. At any price below the top limit the buyer prefers the goods and/or services on offer to the money sum being asked. At any price above the top limit the buyer's preference is to hold the money sum rather than the goods and/or services on offer. The bottom limit, below which the price cannot fall, is determined by the seller who will have a certain money sum

in mind below which he is not prepared to strike a bargain with the buyer for the goods and services on offer. At the bottom limit the seller is indifferent. At any price above the bottom limit the seller prefers the money to the goods and/or services offered. At any price below the bottom limit the seller prefers to keep the goods and/or services on offer rather than accept the money sum bid.

During the process of bargaining a buyer will know his top limit but will not know, and cannot know, the seller's bottom limit. The seller will know his bottom limit but will not know, and cannot know the buyer's top limit. Striking a bargain is possible only if there is a *bargaining gap*, that is where a buyer's top limit in money terms is, in the general case, greater than a seller's bottom limit expressed in the same money terms. Between these top and bottom limits the price at which a bargain is struck will depend on the, bargaining skills and powers of the two parties. The importance of bargaining skills in affecting price is recognised by the many firms which employ specialist buyers and sellers. The most important bargaining power is the knowledge of the existence, or in the case of a monopoly the non-existence, of an alternative market.

The Aggregate Supply Price

In the special case of a bargaining process confined to a spot transaction, the bottom limit of the seller is indeterminate in the sense that it will depend solely on the seller's preferences at a given moment in a particular set of circumstances. In certain special circumstances a seller may even be prepared to make a money payment to the buyer. For example, a manufacturer, in order to dispose quickly of a piece of machinery for which he has no further use, may offer money as an additional inducement even though the machine is usable, not fully depreciated, and might be expected in different circumstances to command a positive market price.

In general, however, the bargaining process is part of the continuing or future production of an output and the bottom limit is determined by the money sum the seller expects will just make it worth while to produce the goods and services being offered. This money sum will be based on the seller's estimate of total cost including a minimum amount of profit. Thus, in line with Marshallian tradition (although not so specified by Keynes), the aggregate supply price of the output of a given amount of employment is an aggregate of the bottom limits of firms acting as sellers and considered as going concerns. Being an aggregate based on information known only to sellers it is a supply-side view of an economy. Given circumstances in which public expenditure is financed by taxation, then, consistent with the definition of Keynes, the aggregate supply price of the output of any given amount of employment is the proceeds firms expect will cover disposable labour income, or take-home pay, and total tax payments plus an amount of disposable profit just sufficient to induce firms to operate at that level of activity.

In Figure 1 the aggregate supply price is that described by an aggregate supply function $Z = \Phi(N)$. As is argued below, this curve is related, given the definition of aggregate supply price above, to an aggregate of total cost curves. It follows that at a level of activity corresponding to N_0 average cost equals marginal cost[1] and, therefore, at this point average cost is at a minimum. For an economy as a whole the level of activity at which average cost is minimised is also that at which the general price level will be lowest consistent with an expectation of profit just sufficient to induce that level of activity. In this sense such a level of activity may be considered as coinciding with the optimum utilization of existing capacity. At any level of activity to the left of N_0 marginal cost is less than average cost and existing capacity is, in general, under-utilized. In the other direction at any level of activity to the right of N_0 marginal cost is higher than average cost and existing capacity is, in general,
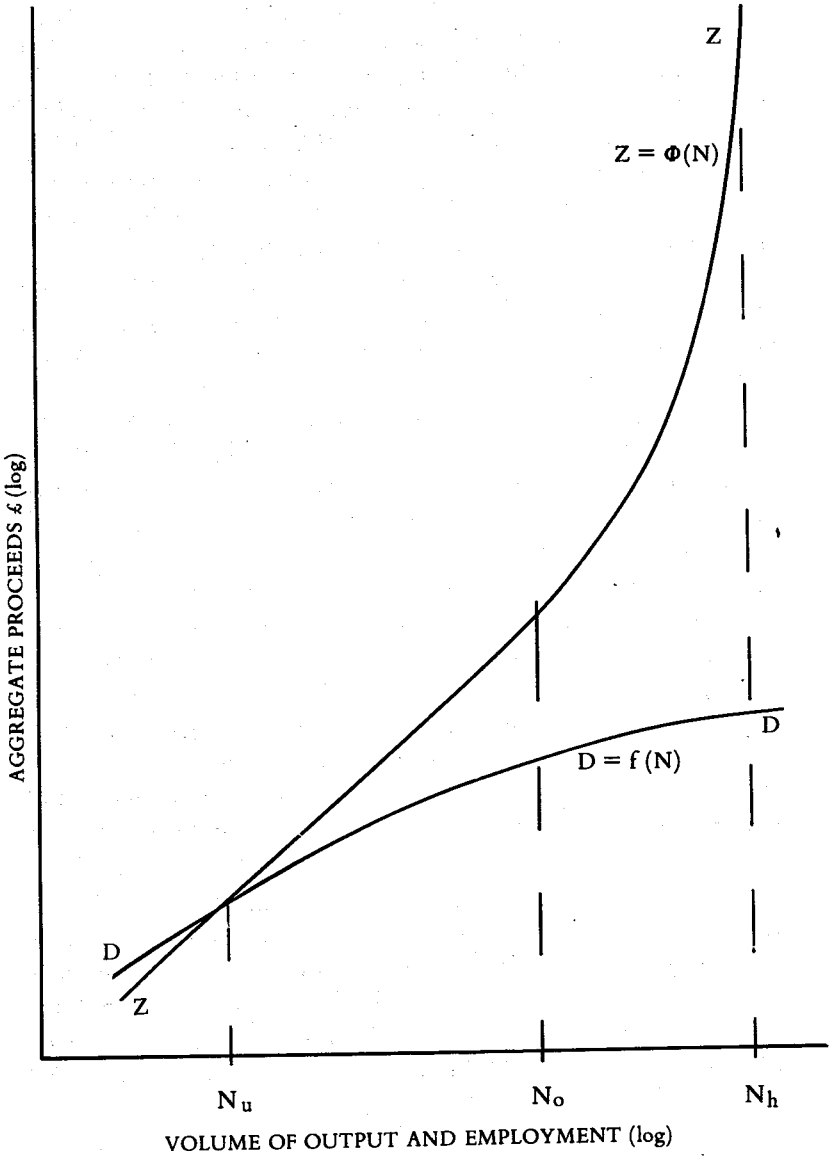
Figure 1

over-utilized. Thus at any level of activity less than the optimum — to the left of N_o in Figure 1 — an expansion of activity up to the optimum would be associated with a falling general price level. Further expansion beyond the optimum — to the right of N_o in Figure 1 — will be associated with a general price level rising at an ever accelerating rate. At a level of activity corresponding to a vertical aggregate supply price curve — N_h on Figure 1 — further expansion is impossible in the prevailing conditions, and any additional aggregate monetary demand will be fully absorbed by rising prices. Keynes called this point 'a state of true inflation'[2], but it is more in the nature of a supply horizon. From a supply-side point of view N_h is as far as may be seen in the short-run during which existing capacity is a fixed factor limiting the expansion of output. In the longer-run the supply horizon is not fixed, but will move to the left or right as firms vary their investment or dis-investment in capacity, depending upon their expectations on the future course of business.

The Aggregate Demand Price

In any particular bargaining process the top limit of the buyer is indeterminate since, like the seller's bottom limit in the case of spot transactions (p.22), it depends solely on the buyer's preferences at a particular moment in a given set of circumstances. However, this is irrelevant to Keynes' theory as the aggregate demand price is not an aggregate based on the top limits of buyers (p.21) but, as stated above (p.20), the proceeds *firms expect to receive* from the output of a given amount of employment. In other words, it is an aggregate of the net receipts from the per unit prices firms expect buyers to pay for a given quantity of output. Thus the aggregate demand price, like the aggregate supply price, is derived from a supply-side view of the bargaining process. From this supply-side view the aggregate supply price is an

aggregate of sellers' bottom limits but the aggregate demand price is not, and cannot be, an aggregate of buyers' top limits, for this requires information that sellers, having a supply-side only view, cannot know.

In a closed economy the aggregate demand price is widely accepted to be the sum of expected consumer spending, investment spending and general government spending on final consumption $(C+I+G)$. The standard system of national accounting conforms to this definition. This is useful for demand management, but the acceptance of this definition results in the component parts of the aggregate demand price being unrelated to the component parts of the aggregate supply price as defined above (p.23). A correspondence of component parts consistent with the supply-side view taken by Keynes for his general theory of employment (p.20) requires spending on consumption and investment $(C+I)$ to be re-defined to include only spending out of' take-home pay and disposable net profit components of the aggregate supply price. General government spending (G) may be then defined as spending out of tax revenue plus general government borrowing requirement. An advantage of redefining the theory in this way is that general government propensity to spend out of tax revenue plus borrowing requirement is, by definition, always equal to unity.

In Figure 1 the aggregate demand price curve is that described by an aggregate demand function $D = f(N)$. The point of intersection between the two functions is drawn to correspond with a level of activity N_u, implying slumpy conditions in which existing capacity is generally under-utilized and, as a result, firms are confronted by an inelastic demand price curve. To the right of any point of intersection the theory of Keynes predicts the aggregate demand price curve to be less elastic than the aggregate supply price curve. At a level of activity to the left of that corresponding to N_o, the economy as a whole is subject to decreasing average cost.

In the case illustrated therefore the economy must, by derivation from the aggregate supply price, be faced with an inelastic aggregate demand price curve. An economy will be faced with an elastic demand price curve only when subject to increasing average cost with the point of intersection to the right of a level of activity corresponding to N_o and approaching the supply horizon N_h. As the aggregate demand price curve is not limited by the supply horizon, it is shown in Figure 1 as cutting the perpendicular N_h.

A Supply-Side View

The view of an economy as a whole as illustrated by Figure 1 is a supply-side view — the view of sellers, or producers, or firms. That this is a supply-side view is important. It is the fact of this view which refutes the argument that, as there cannot be more than one market price, there is a logical contradiction in the assumption that both the aggregate demand price and the aggregate supply price represent the expectations of firms. For example, Pantinkin argues that at any level of activity to the left of a point of intersection, say N_u in Figure 2, firms expect two different per unit prices: one corresponding to the aggregate supply price N_uZ and the other corresponding to the aggregate demand price N_uD. This argument ignores the fact of a supply-side only point of view. Firms, as suppliers, can view an economy only from the supply-side. For firms the aggregate demand price N_uD (Figure 2) is the proceeds they expect to receive from the output of a given amount of employment N_u. The aggregate demand price N_uD corresponds then to the per unit market prices firms expect buyers will pay for that particular quantity of output which would be the outcome of their giving an amount of employment N_u. The aggregate supply price N_uZ (Figure 2) is not an expected market price, but corresponds to the per unit prices firms expect will yield, at that level of activity, proceeds just sufficient to cover total

costs, including a minimum profit. The expectations of proceeds N_uZ is sufficient to induce firms to produce the output of an amount of employment N_u, but in the given conditions of demand they expect to receive more for that quantity of output; they expect to receive N_uD. In other words, in the market conditions illustrated by Figure 2 and operating at a level of activity N_u, firms expect proceeds to yield a profit in excess of that which would just make it worth their while to produce an output of an amount of employment N_u.

At any level of activity the total of the per unit market prices firms expect buyers to pay for a given output corresponds always to the aggregate demand price. Only at the point of intersection, where the value of D equals the value of Z, does the total of expected per unit market prices of output correspond also to the aggregate supply price. Indeed it is that which, according to Keynes' theory, stops an economy tending automatically towards the supply horizon, the point Keynes called 'full employment' or 'a state of true inflation'. At any level of activity to the right of a point of intersection the value of D is less than the value of Z, which implies a circumstance where the per unit market prices firms expect buyers to pay will yield a profit insufficient to induce them to operate at such a level of activity.

Profit

In a firm's accounts profit is a residual item. This profit is a money sum that has actually accrued to a firm during a given time period and, in the accounting sense of a money sum actually realised, it is realistic to assume an individual firm to be a profit maximising organisation. It is in the interests of every firm to endeavour to ensure that its realised profit during a given time period is the best possible that can be achieved in the competitive conditions within which it operates. As Adam Smith stated, 'It is not from the
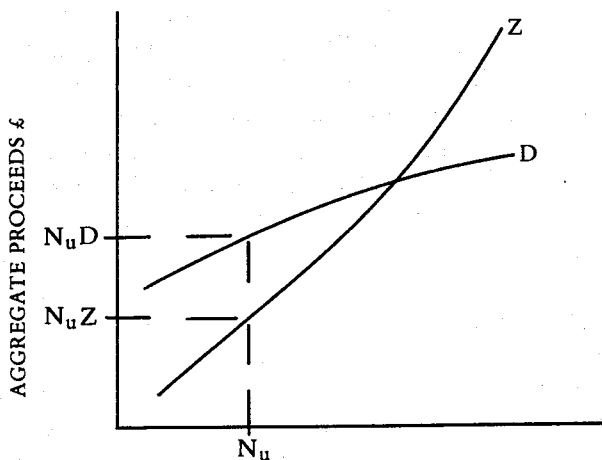
VOLUME OF OUTPUT AND EMPLOYMENT

Figure 2

benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard for their own interest. We address ourselves not to their humanity, but to their self-love; and never talk to them of our own necessities, but of their own advantages'.[3] However, profit is, in the accounting sense, a result, and while firms in their own interests may be assumed to strive for the best possible results, the production for sale is a risk-taking activity and for an individual firm that result may be a loss. Whether the accounting result is a gain or loss, it is not the profit that enters into the aggregate supply price as this is a certain sum the expectation of which is just sufficient to induce firms in aggregate to operate at a particular level of activity.

The amount of profit, the expectation of which is just sufficient to induce a firm to operate at any given level of activity in a particular line of production, is determined by a variety of factors. For example, the profit expectation must be sufficient to cover the disposable income expectations of shareholders. The expectations of shareholders will be related in turn to the alternative oportunities open to those shareholders, as well as to the current market view in national and international stock and capital markets. In the case of a quoted company the extent to which it fulfills the expectations of its shareholders and of the financial markets will affect its share price. A company's share price cannot be allowed to fall much below the current market price of its net assets without endangering its continued existence as an independent entity. In all cases the expected profit must be sufficient also to ensure that capital funds are available, or can be raised on competitive terms, to finance any new investment necessary to maintain the firm's competitive edge. Thus for every firm there is a minimum profit which is in the nature of a cost and which, taking one year with another, must be covered by the expected proceeds from its output of a given amount of employment if the firm is to continue to give that amount of employment.

In a competitive market economy any firm, or group of firms in combination, which attempts to achieve a profit much in excess of a necessary minimum by restricting output and raising prices must expect to encourage competitors and thus suffer a loss of market share. For example, the OPEC policy of raising the price of crude oil by restricting the output of its members encouraged exploration and production in non-member countries throughout the world and so led to a loss of market share for OPEC members. Apart from exceptional cases of monopoly or near monopoly the fear of additional competition and loss of market share will overcome the attraction of a short-run 'fast buck'. All firms must act 'with regard to their own interest', as Adam Smith

recognised, and to this extent individual firms may be considered to be profit maximising organisations. Taking the longer view, however, what is effectively a maximum profit in competitive conditions for an individual firm is related not to the point where its marginal cost equals marginal revenue but to the point where its total cost, including a minimum profit, equals its total revenue. The competitive struggle in which all firms are engaged in an open trading economy causes them to drive each other towards a level of activity at which they can expect both individually and in aggregate no more than an amount of profit just sufficient to induce that activity. It is this necessary minimum amount of expected profit that is, for individual firms and for firms in aggregate, in the nature of a cost which is the profit included within the aggregate supply price.

By definition (pp.20, 23) all points on the aggregate supply price curve are points at which the expected disposable net profit is the minimum needed to induce firms to operate at that particular level of activity. Therefore the point of intersection between the aggregate demand function and the aggregate supply function is also a point of minimum profit. Moreover, at any level of activity in excess of that corresponding to the point of intersection, for example, to the right of N_u in Figure 1, profit will be less than firms need to induce such a level of activity. In the opposite direction any level of activity less than that corresponding to the point of intersection, for example to the left of N_u in Figure 1, the expected profit will be, as the value of Z is less than the value of D, in excess of that minimum needed to induce firms to operate at that level of activity. Thus the general theory of employment predicts that in the short-run, during which existing conditions and capacity are fixed factors, an expansion of activity will tend always to be associated for firms in general with a smaller profit or greater loss. On the same assumptions the theory predicts for firms in general a

contraction of activity to be associated in the short-run always with a tendency towards an expected larger profit or smaller loss.

Keynes' assertion that the point of intersection is the 'point that entrepreneurs' expectation of profits will be maximised' is inconsistent with his definitions and with predictions from his theory based on those definitions.[4] His assertion is consistent only providing the aggregate demand price curve and the aggregate supply price curve are aggregates of marginal revenue and marginal cost curves as illustrated in the top half of Figure 3. However, Keynes defined both the aggregate demand price and the aggregate supply price in terms of 'the proceeds' which he used as a convenient shorthand for 'the aggregate income (i.e. factor cost plus profit)'.[5] He did not use the words *additional* or *marginal* proceeds which would imply aggregates based on marginal revenue and marginal cost. Thus his aggregate demand price must be taken as an aggregate of *total* net revenue and his aggregate supply price as an aggregate of total net cost including a minimum profit. This is a level of revenue containing profit 'which will just make it worth while of the entrepreneurs to give that employment'.[6] Such a profit can be interpreted therefore only as a minimum. If firms in aggregate are assumed to be profit maximisers, then Keynes' theory predicts that an economy will tend automatically to contract away from the point of intersection at which the effective aggregate demand price and the effective aggregate supply price have the same value. As illustrated on Figure 3, individual firms, when considered as profit maximising organisations, tend to contract from the level of activity, indicated by the minimum profit vertical, determined by the intersection of total cost and total revenue curves, towards the maximum profit vertical, determined by the point of intersection of the marginal cost and marginal revenue curves. It follows therefore that, for an economy as a whole to tend automatically towards a level
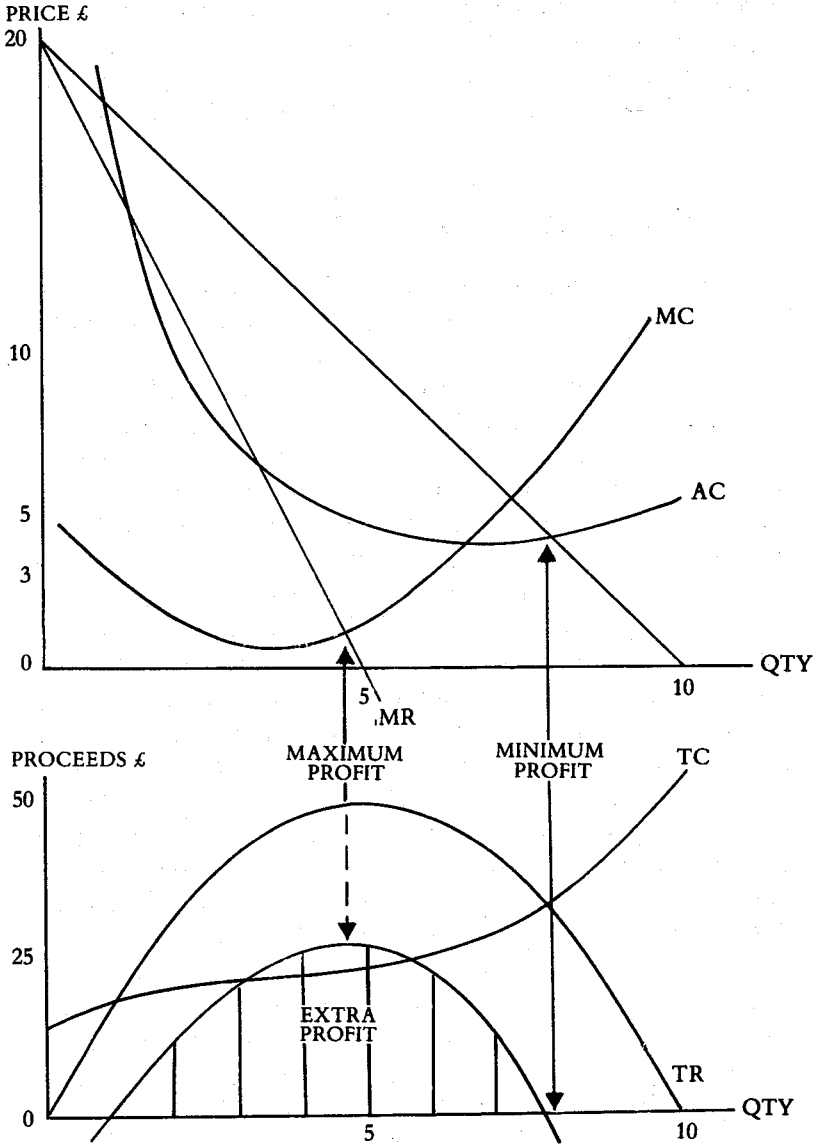
Figure 3

of activity corresponding to the point of intersection of the aggregate demand and aggregate supply functions, the requirement must be that firms do not, or cannot, operate as profit maximising organisations in a competitive market economy.

The Demand-Side Approach

The above development of Keynes' general theory of employment gives some limited support to those who advocate sustaining a high level of public spending as the way towards a prosperous economy. When government spending, G, is increased then *cet. par.*, the value of D is increased for all values of N. In Figure 1 this is the equivalent of an upward shift of the aggregate demand price curve and in turn this causes the point of intersection to move to the right so, creating conditions tending to cause an expansion of the economy. At first sight this appears an easy option but the theory also predicts that travelling too long and too far on this road is likely to create as many difficulties as it solves. If the expansion is pushed beyond a point corresponding to N_0 on Figure 1, then the economy will be subject to a persistently rising general price level and home producers will tend to lose their competitive edge in both home and overseas markets. Again, given circumstances where government rely on tax revenue to finance public spending then there are only three ways open to government to raise the additional public revenue and all have deleterious side-effects.

A government may, as Milton Friedman put it, print the additional money needed. That this method of public finance soon leads to inflation is a fact of repeated experience and, as inflationary expectations spread throughout the economy, the last state is worse than the first. The additional public spending is absorbed in rising prices rather than encouraging expansion and so inflation is added to whatever troubles existed at the outset. Another option open to government is

to increase the tax take. With this method of financing additional public spending the increase in taxation, T, tends to increase the value of Z for all values of N. In Figure 1 this represents an upward shift of the aggregate supply price curve in step with the upward shift of the aggregate demand price curve. As these two curves rise together the point of intersection rises nearly vertically, leading to rising prices with little or no expansion of activity. Unless the money supply is increased as prices rise then, very quickly, the rise in prices will be followed by a contraction of activity. Yet again, the theory predicts that this method of financing public spending results in the last state being worse than the first.

The remaining option open to government is for them to finance their additional spending by borrowing. The eventual outcome of this method depends to a large extent on the particular circumstances at the time and the precise method by which government borrows. When government borrowing is no more than a method of increasing the money supply it is really printing money and this leads directly to inflation with the consequences noted above. When government borrowing conforms to what Milton Friedman and others call 'true borrowing' then the borrowing will not be a direct cause of inflation, although it may cancel out any expansionary tendencies motivated by the additional public spending. This cancelling out will happen when the funds borrowed by government would have been spent otherwise by the private sector. As public spending financed by true borrowing increases, private sector spending on investment is squeezed out and so there is little or no net effect on aggregate demand. Only when government is borrowing 'idle balances', generated by an economy's propensity to save being greater than its propensity to invest, will the financing of public spending by true borrowing have the intended expansionary impulse without the addition of unwelcome side-effects. This kind of operation is often

called a pump priming measure which may be expected to jerk an economy out of a prolonged depression. Such a policy was advocated by Maynard Keynes and other leading economists during the early thirties as a way out of that particular depression. At the time it was called 'deficit spending on public works'. Nonetheless, even in the appropriate circumstances the policy is no more than a once and for all measure which cannot be sustained. As an economy begins to expand then the generation of idle balances will decrease as the propensity to invest increases to equate with the propensity to save. As this continues true borrowing by government will begin to squeeze out private sector investment spending and cease to have its original expansionary effect. Keynes' general theory of employment supports a policy of increased public spending by deficit financing only in certain circumstances and as a short-run pump priming measure.

The Supply-Side Approach

The development of Keynes' general theory of employment provides also some support for supply-side tax cutting policies. When a government cuts its tax take then the value of T is reduced and this tends to reduce the value of Z for all values of N. In Figure 1 this represents a downward shift of the aggregate supply price curve which will, *cet. par.*, shift the point of intersection to the right and so tend to expand the economy. However, the *cet. par.* qualification assumes no significant change in the aggregate demand price curve, but this is unlikely unless public spending, G, is also unchanged. It is unlikely since, although a cut in tax take will increase the private sector's disposable income, the private sector's propensity to spend out of disposable income, is usually less than government's propensity to spend out of tax revenue. The qualification assumes also that public spending is sustained without incurring a deficit to be met by printing money or borrowing. In certain circumstances given an open

economy this latter assumption may be realistic. A reduction in the value of Z for all values of N allows home producers to become more competitive as against overseas producers and thus create a tendency for exports, E, to increase not only absolutely but also relative to imports, M. An improvement in exports and a reduction in imports may be expected to compensate for some cut in public spending without causing a reduction in aggregate demand. Further, as most of any expansion will be reflected in home produced incomes this will lead to buoyant tax revenues which in turn will assist in preventing a deficit.

Since Keynes' theory predicts that a cut in the tax take will reduce the value of Z for all values of N, then the logical conclusion is that an open market economy can attain the lowest possible aggregate supply price in given conditions only when all domestic taxes are abolished. When the value of Z for all values of N is the lowest possible, then home producers have the opportunity to be most competitive in both home and overseas markets. Only when home producers are highly competitive in world markets can an open free market economy be properous and sustain a high level of activity. The weakness of Keynes' theory is that, while leading to such a conclusion, it does not offer a solution to the issue of raising the necessary public revenue without recourse to taxation. The strength of Keynes' theory is that it does isolate the fundamental difficulty facing contemporary trading economies; this is that taxation must, sooner rather than later, inflate the aggregate supply price and so lead inevitably to a loss of competitiveness, rising prices and rising unemployment. The theory serves also as an analytical tool for discovering the processes by which taxation affects both prices and unemployment. An understanding of these processes is a prerequisite for the formulation and implementation of effective policies designed to remedy the defects which today appear to be inherent in free market open economies.

1. Since Figure 1 is on a log–log scale, marginal cost equals average cost at a point where the aggregate supply price curve is tangental to a line of 45 degrees sloping upwards to the right.
2. J.M. Keynes, *The General Theory of Employment, Interest and Money*, p.119.
3. Adam Smith, *The Wealth of Nations*, Bk.I, Ch.II.
4. Keynes, *op. cit.* p.25.
5. *Ibid.* p.24.
6. *Ibid.* p.24.