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Keynes and the Supply Side

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Not all advocates of the income-expenditure analysis know, or remember, that Keynes also explained his theory of income and employment in terms of aggregate supply and aggregate demand. But, since he did and it has a relationship to both the terms of Classical doctrine and current supply-side economics, it should prove enlightening to take a look at Keynes' seldom explained aggregate supply-aggregate demand model of economic activity and equilibrium. Moreover, given the current paucity or non-existence of graphic supply-side models it may fill a void until better graphic models are developed.

The Aggregate Demand and Supply Approach

According to Keynes, the principles of effective demand and economic equilibrium with the related problems of unemployment and inflation can be explained in terms of demand and supply. The terms "aggregate demand" and "aggregate supply" are used by Keynes, however, a bit differently than they are conventionally used in economic analysis. The reference is not to the demand for and supply of commodities in relationship to prices.

Aggregate Demand

In Keynes' income-expenditure analysis, *aggregate demand* is a schedule of proceeds *expected* by producers from the sale of output resulting from various levels of employment. Aggregate demand is dependent upon the total spending of the community for consumer and capital goods. It is reasonable to assume that aggregate demand will increase as output and income increase. Since people will have more money to spend at a higher level of employment and income, greater proceeds will accrue to producers as they sell more commodities. Graphically, aggregate demand can be shown by a line moving upward and to the right as in Figure 1. The graph is in contrast to the typical downward sloping price-quantity demand schedule for a firm or industry as used in micro analysis.

Aggregate Supply

Aggregate supply, on the other hand, is a schedule of the *necessary* proceeds required by entrepreneurs to induce them to hire varying numbers of employees. Since employers are in business for a profit, it is reasonable to assume that the necessary proceeds to induce them to operate their businesses will be an amount sufficient to recover not only all cost but also allow a normal profit. Since it costs more in total to produce larger amounts and results in the use of more employees, the aggregate supply schedule will also move upward to the right. Since aggregate supply (necessary proceeds) will correspond to the total production cost including a normal profit, it is equivalent to the value of the total goods and services produced at each level of output or employment. Further, as cost payments for the factors of production become income to the recipients, the aggregate supply line will correspond to the level of income for varifying amounts of employment. The aggregate supply schedule is presented in Figure 2, which shows necessary proceeds increasing with employment. The aggregate supply schedule need not be a 45° line since it covers both fixed and variable costs.

FIGURE 1
Aggregate Demand

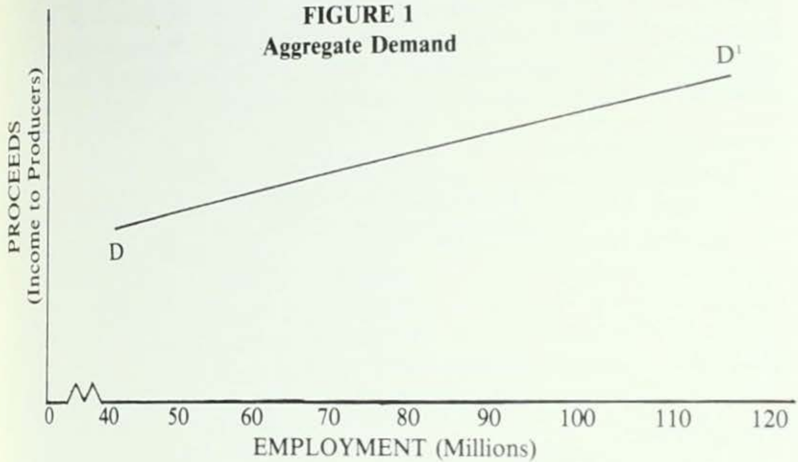
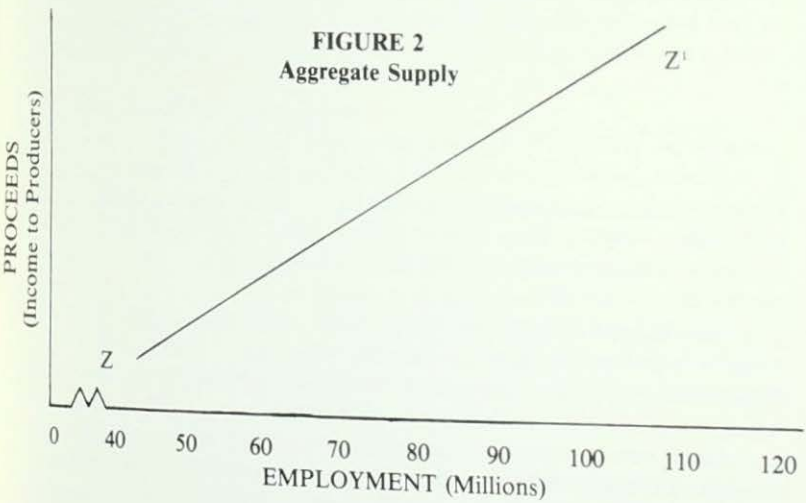


FIGURE 2
Aggregate Supply

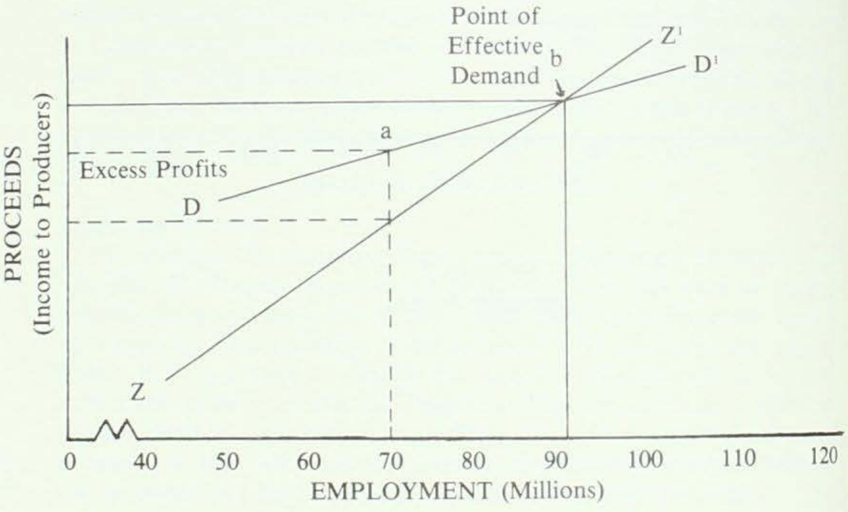


Equilibrium Point

In the classical approach, supply creates its own demand; therefore, supply and demand will be equal at any given level of output or employment. If such were the case, the aggregate demand would be superimposed upon the aggregate supply line. The effective demand would equal total output at any level of employment and all goods produced would be moved off the market. Accordingly, there would be nothing to deter businesses from increasing production and employment until the full-employment stage was reached.

Keynes' income-expenditure theory disagrees with this assumption. He argues that since the marginal propensity to consume declines as output, employment, and income increase, a point may be reached at which the total effective demand (expected proceeds) may be less than total supply (necessary proceeds). This situation can be demonstrated by combining the aggregate supply schedule, as shown in Figure 2, with the aggregate demand schedule, as shown in Figure 1. This is done in Figure 3.

FIGURE 3
Relationship of Aggregate Demand and Aggregate Supply



The income-expenditure theory holds that at a certain level of economic activity the aggregate demand will exceed the aggregate supply. This means that the expected proceeds (revenue) from the sale of output will exceed the necessary proceeds (revenue) required to produce the given amount of output. This is possible if business people or others utilize past savings or if bank credit is used to finance the demand for goods and services of either the consumers or the investors. The situation is presented in Figure 3 in that area of employment less than 70 million. For example, at point "a" the expected proceeds are greater than the necessary proceeds required to induce employers to hire 70 million workers. At this point, the proceeds between the aggregate supply and the aggregate demand are equivalent to excess profits, an amount in excess of what is normally required to induce production and employment at that level.

Since anticipated proceeds are greater than necessary, businesses will be induced to increase investment for materials, labor, and capital goods. This additional investment will bring about increased production and employment. In the process both aggregate supply and aggregate demand increase. But because of the fundamental principle that consumption does not increase as much as production and income, or, in other words, because of the fact that the marginal propensity to consume declines as income increases, aggregate demand increases at a slower rate than aggregate supply (production and income). Eventually a point is reached at which aggregate demand comes into balance with aggregate supply.

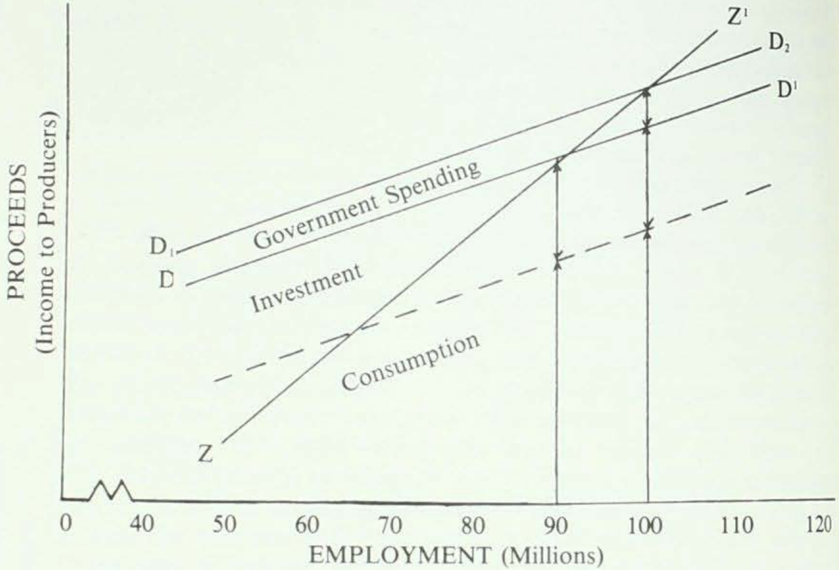
This is represented by point "b" in Figure 3. Here there are no excess profits, and there is no incentive for businesses to increase production or employment beyond 90 million persons which corresponds to point "b", since beyond point "b" the aggregate demand (expected proceeds or revenue) is less than the aggregate supply (necessary proceeds or revenue). Under a competitive system, "b" becomes the point of maximum profits for the economy as a whole. Employment will not be less than 90 million because of competition among businesses seeking to increase profits will cause expansion. Employment will not be more because it is less profitable for employers to hire beyond this point. Thus, "b" becomes the equilibrium point and is referred to as the *point of effective demand*. It is the point to which the economy will automatically move, and 90 million will become the equilibrium level of employment. The economy will stay in balance at this level, according to Keynes, unless disturbed in some way.

Equilibrium and Full Employment

According to the income-expenditure theory, the point of equilibrium or effective demand does not necessarily correspond with full or high-level employment as the classicalists maintained. This point of equilibrium may occur at some level less than full employment or even at widespread unemployment. Keynes implied that the economy frequently does come into balance at a position less than full employment, and that it may remain there for extended periods of time unless aided by some outside force. According to the income-expenditure analysis, there is no automatic adjustment to the full-employment stage. As a result, suggestions are made in regard to the use of artificial stimulants to move the economy to a position of high-level production and employment.

In order to understand these suggestions, we must keep in mind that the aggregate demand is made up of two basic elements: the demand for consumer goods and the demand for capital goods, or consumption and investment, as they are indicated in Figure 4. The aggregate demand is also affected by a third force, government spending. Suppose the economy is in equilibrium at less than full employment, 90 million, and it is desirable to move up to a higher employment level of 100 million. This can be accomplished by an increase in either consumption or investment.

FIGURE 4
Increasing Government Spending To Raise Employment and Income



Since consumers usually do not have the means of increasing consumption unless their incomes are increased and since there may be no incentive for businesses to increase investment, it is suggested that monetary and fiscal measures be used to encourage investment and consumption. Such policies as lower interest rates, lower taxes, unemployment insurance, and other social measures designed to increase consumption and investment are suggested. In fact, Keynes advocated direct government intervention in the form of deficit spending, if necessary, in order to raise the level of effective demand sufficiently to have it intersect aggregate supply at the desired level of production and employment.

Thus, if it were desirable to raise the level of employment to 100 million, it could be effectuated by an increase in consumption, investment, or government spending, or a combination thereof. See Figure 4, where DD^1 has been raised to D_1D_2.

The Three Strategic Variables

According to Keynes' income-expenditure theory, the level of employment depends on the relationship between aggregate supply and aggregate demand. Adequate aggregate supply will be forthcoming as long as there is a demand for it and there are available resources and manpower in the economy to produce the desired amount demanded. The aggregate demand sufficient to absorb the goods the economy is capable of producing may not be forthcoming, however, if income recipients do not spend all the income generated or received. Since aggregate demand consists of both consumption and investment spending, the level of employment, or economic activity in the absence of government spending, is dependent upon aggregate supply, consumption, and investment. Analyzing further, investment is dependent upon the marginal efficiency of capital and the rate of interest. Therefore, according to Keynes, excluding government spending, employment depends on the aggregate supply, consumption, the marginal efficiency of captial, and the rate of interest.

At this point the determinants of the general level of economic activity can be reduced to three strategic variables. Since, according to the income-expenditure analysis, there is no problem about supply so long as we have the means to produce, the level of activity will depend upon: 1) the propensity to consume, 2) the marginal efficiency of capital, and 3) the rate of interest. These become Keynes' all-important determinants of output, employment, and income. An increase in consumption will raise total effective demand and will result in an increase in the level of economic activity. A rise in the marginal efficiency of capital, through increased productive efficiency, greater sales, higher prices, or otherwise, will increase investment and therefore effective demand. A lowering of the rate of interest that will induce more investment by widening the gap between the marginal efficiency of capital and the rate of interest also will result in a greater effective demand. Naturally, the effective demand will be decreased if these three variables were to change in the opposite directions. It is quite possible also that a favorable change in one may be offset by an unfavorable change in another.

In the event that these three strategic variables are related in such a manner that the economy is at a position of less than full employment, monetary and fiscal policies can be used to bring about a more favorable relationship between the variables. As mentioned previously, reduced taxes, liberal credit, lower interest rates, social programs designed to increase consumption, and other measures may be used. If these indirect measures are not effective and it is desired to raise the level of employment, then Keynes suggested that direct government spending may be used as a means of raising the effective demand. If government spending is resorted to, however, it invariably will have to be deficit spending.

If the government increases its spending by raising taxes, it decreases the spendable funds of consumers and investors. If they, as a result, are forced to reduce consumption and investment, effective demand will be reduced accordingly. Any advantage from government spending in this case would be offset at least in part by a decrease in private consumption and investment. If the government borrows the funds, especially if it borrows from the banks, instead of obtaining funds through taxation, private consumption and investment probably will not be reduced. In this case, the government spending will have a more pronounced and desirable effect. In the matter of using government spending as a means of bolstering the economy, Keynes cautioned that prudence must be exercised to spend in a manner and direction that will not in any way discourage private consumption and investment.

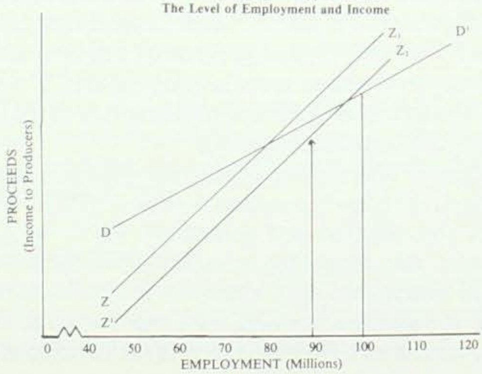
Importance of Investment

Since Keynes assumed that the propensity to consume is relatively stable, at least in the short run, and that increases in consumption usually result from increases in income, he maintained that the necessary increases in effective demand to move the economy toward a higher level of employment must come from increases in investment. Thus, Keynes concluded that increased investment is needed to raise the level of business activity, and that the level of employment will vary with changes in investment. It was Keynes' contention, perhaps from observing the circumstances of the times, especially the 1930's, that more likely than not the economy would be at a stage of less than full employment. In fact, Keynes suggests that the economies in Britain, the United States, and elsewhere, may be in a state of chronic unemployment, and that sufficient effective demand from consumption and private investment would not be forthcoming to raise the level of employment. It was for this reason that he advocated the use of government spending as a means of raising the level of employment. Although the passage of time has shown that unemployment is not a chronic situation, it does not invalidate the principles of the income-expenditure analysis. It merely means that expansionary measures are not always necessary.

Reducing Aggregate Supply

By looking at Figure 5, it becomes apparent that instead of raising aggregate demand in order to have it balance with aggregate supply at an employment level of 100 million, the same result could be accomplished by lowering the aggregate supply (costs). The possibility of reaching a higher level of employment by reducing the aggregate supply is shown in Figure 5.

FIGURE 5
Lowering Aggregate Supply to Raise
The Level of Employment and Income



Here it can be seen that the intersection of aggregate demand DD^1 and aggregate supply ZZ^1 occurs at a level of employment of 90 million. If this is a point of less than full employment and it is desirable to raise the level of employment, this end can be accomplished by *lowering* the aggregate supply to Z_1Z_2. This is what probably would occur, according to the classic economist who maintained that unemployed workers would bid against each other for jobs and thus reduce wages.

Keynes, in his income-expenditure analysis, does not put much faith in this method of attempting to raise the level of employment. Keynes did admit that it may do some good to lower wages, which in effect would lower the aggregate supply since it would reduce the necessary proceeds required to induce entrepreneurs to hire a given amount of labor. He states, in fact: "A reduction in money-wages is quite capable in certain circumstances of affording a stimulus to output, as the classical theory supposes."[1] He remarked, however, that it was inadvisable to resort to this method because the wage reduction may have an adverse psychological effect on consumers and investors.

According to Keynes a wage reduction may bring about a reduction in prices of finished products. Nevertheless, a wage reduction will redistribute income from wage earners to other factors of production, such as entrepreneurs and rentiers (fixed income recipients) thereby lowering the propensity to consume for the community as a whole. This will occur because of the redistribution of income from the wage earner to higher income non-wage earners whose marginal propensity to consume is lower. Although entrepreneurs may realize an initial increase in profit due to the wage reduction, any resulting increase in investment and employment according to Keynes will be temporary since the gain in investment will be offset by the overall decline in the propensity to consume. Moreover, since entrepreneurs rationally would expect that proceeds from the sale of their products would diminish, as a result of the reduced wage level, they would not likely increase investment in response to a reduction in wage rates. Keynes suggestion that a cut in wages will have an effect on output and employment other than temporary, only if the community's marginal propensity to consume is equal to unity so that there is no gap between the increment of income and the increment of consumption.[2]

It would seem, however, that the aggregate supply could be reduced by methods other than lowering wages. The same effect would occur from increased productivity resulting from more efficient use of labor, better managerial techniques, improved machinery and equipment, and the like. It would seem certain, too, that in the event consumption and private investment were inadequate to give a desirable high level of employment more could be done in an attempt to reduce costs in order to *lower* the aggregate supply and therefore effectuate an increase in total employment. In fact, evidence over the years indicates that employers work in this direction whenever business begins to slacken.

Then, too, in these days of changing rational expectations, it is possible that wage reductions may have a different effect on entrepreneurs compared with the 1930's. They might view the resulting increase in profits and marginal efficiency capital to be more permanent and expect their sales to rise permanently as a result of lower commodity prices. This would be true if the wage concessions were a part of an overall economic plan or program to lower cost, reduce inflation and stimulate productivity.

In conclusion it does appear: (1) that Keynes was well aware of the supply-side; (2) that he did not put much faith in the use of supply-side measures to expand the economy; (3) that he did not give much consideration to the supply-side to combat inflation, which, of course, did not exist at the time of the General Theory; (4) that although Keynes showed or explained the effects of such factors as government spending, deficits, savings, interest rates and tax cuts on the demand side, for all practical purposes he chose to ignore or disregard their effect on the supply-side; and (5) that in spite of his disuse or neglect of the supply-side, his aggregate demand-aggregate supply model can be used as a framework for current supply-side analysis.

Footnotes

[1]Keynes, John Maynard. *The Theory of Employment, Interest and Money.* New York: Harcourt, Brace and Company, 1935. p. 257.

[2]*Ibid.* pp. 262-264.

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