

Macroeconomics: BSc Year One

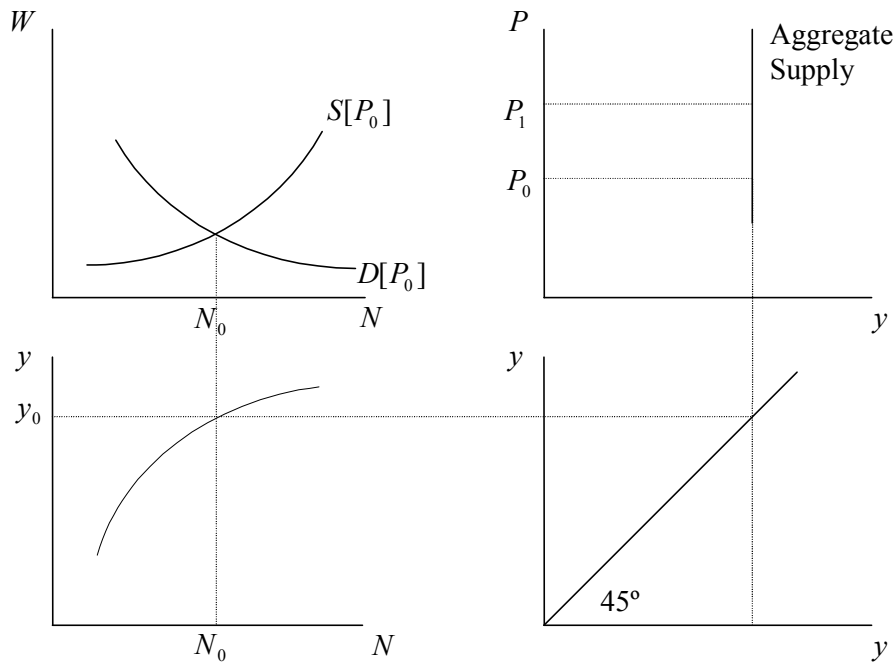
The Keynesian View of the World

In the 1930s, there was a severe slump in the economy, with high unemployment, which could not be explained by the classical view; prices were falling, not rising as Classicalists predicted they should be.

The central idea in Keynesian economics is that markets do not function as ‘perfect’; there is large-scale market failure at times. The government needs to intervene to prevent such failure.

The simplest Keynesian model aims to understand how markets fail, and what can be done to prevent this.

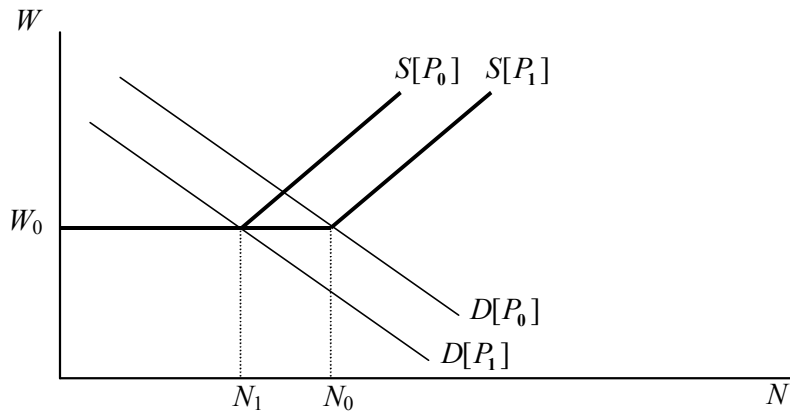
Keynesian Aggregate Supply



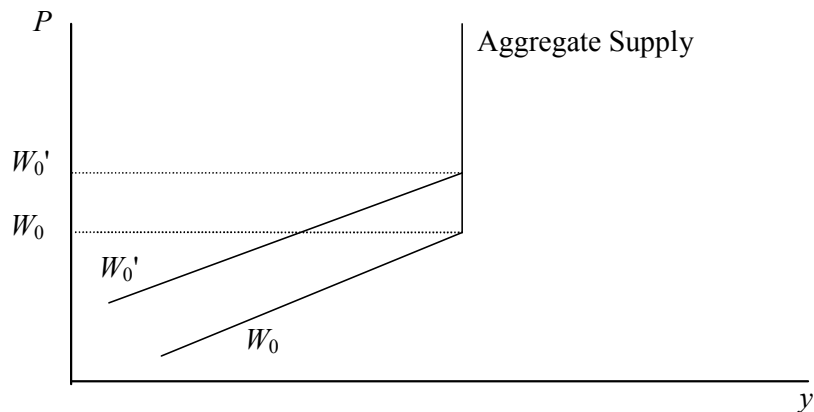
We call W_0 (the level of wages where $S[P_0]$ and $D[P_0]$ intersect) the historically given level of nominal wages. Keynes agrees with Classicalists that if price was to rise to P_1 , demand and supply curves would shift up by equal amounts, leading to a vertical aggregate supply curve.

Keynes argues that people will be reluctant to lower wages, so wages are sticky in a downward direction. Although workers are concerned about real wage values, they are also

concerned about their wage rate relative to other groups'. Nobody would want to be the first to accept a nominal wage cut. The supply of labour curve is thus redrawn, and a fall in price leads to a fall in employment, but no fall in wage:



Replacing this supply curve in the previous diagram, a similar derivation gives us a new shape of aggregate supply curve, depending on the historically given wage level:



In order for firms to be willing to employ everyone at the full employment level, the real wage must be low enough; at the initial wage W_0 prices must be at least P_0 for unemployment to be zero. If prices fall, real wages become too high, and firms are unwilling to employ everybody.

Keynesian Aggregate Demand

Keynesian demand is determined, again, by the components of consumption, investment and government expenditure. By considering the changes made within the model, we may form an equation for aggregate demand very similar to that in other models:

$$y^d = \frac{a + I_0 + \bar{g} + h\dot{P}^e}{1 - b + hk/l} + \frac{\bar{M}}{P} \left(\frac{h}{(1-b)l + hk} \right)$$

Now, Keynesians make three key assumptions which change the nature of the model. Firstly, it is assumed that investment expenditure is, in fact, insensitive to changes in the rate of interest, which implies in the above equation that $h \approx 0$. This further implies that demand is independent of the monetary side of the economy (that is, the AD curve is vertical).

Secondly, Keynesians assume that the demand for money is highly sensitive to a change in the rate of interest. This implies that l is very large above, and there is a similar effect to the first assumption.

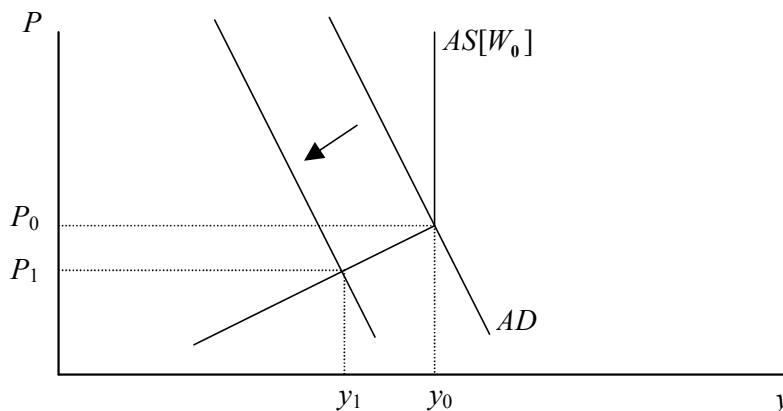
Finally, we must assume that expectations about the future profitability of investment projects are volatile – that is, I_0 is not constant. This will have a direct effect on aggregate demand.

The most extreme model, where $h = 0$ and the AD curve is vertical, is not strictly practical. It is more realistic to expect real interest rates to have some impact on investment, so the curve should be thought of as very steep. An initial fall in any of the variables a , I_0 or \bar{g} has a multiplier effect; a fall of income by 1 leads to a fall in consumption of b , leading to a fall in income of b and thus a further fall in consumption of b^2 :

$$\begin{aligned} \Delta y &= 1 + b + b^2 + \dots \\ &= \frac{1}{1-b} \end{aligned}$$

For changes in income that are not unity, we must multiply by the initial change. There is obviously a bigger effect if b is close to 1.

As by the last assumption above, Keynesians believe that I_0 is not necessarily constant, and that it depends on expectations, meaning aggregate demand is very volatile;



and that once the economy has fallen to P_1 and y_1 , there is no mechanism to ensure the economy returns to full employment. This is the first distinguishing lesson of Keynesian economics.

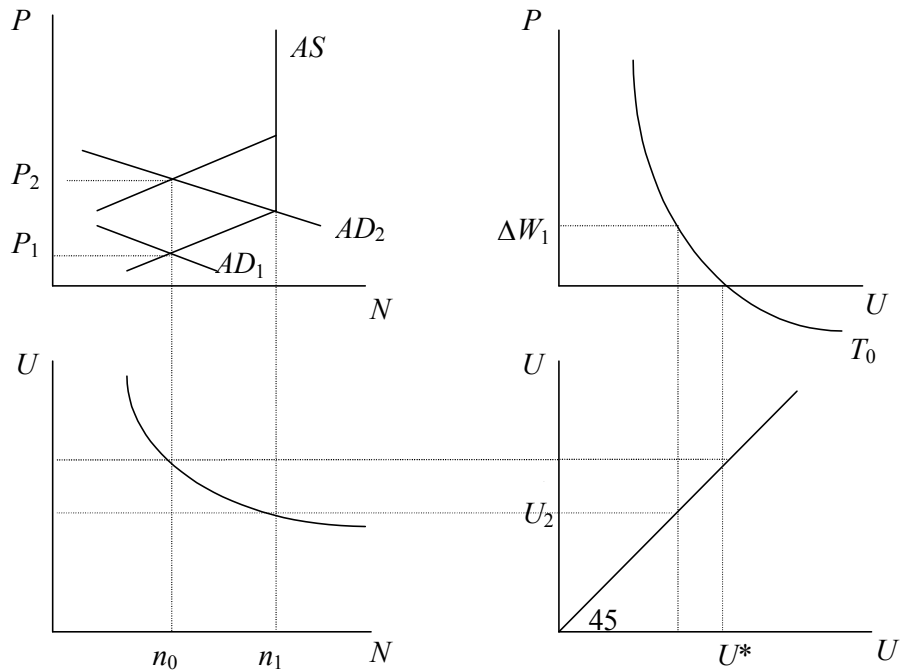
The second important point is that governments must be more active to rescue a free-market economy from itself. From the algebra, we can see that government expenditure is as important as autonomous investment, and so the level of \bar{g} can be varied to offset any changes in I_0 .

Keynes, therefore, set a policy objective to estimate changes in aggregate demand over a year and set government spending to offset this. This policy was used in the UK in the 1950s and 1960s, and was very successful; there was, however, a problem of constant inflation, leading to problems with the model – expectations were no longer compatible – and so Keynesians set to incorporate inflation into their view of the world.

The Phillips Curve from a Keynesian View

Keynesians think of wages as being set by a process of bargaining between the employer and employee, and if the employee has higher bargaining strength he can secure a higher wage. This strength can be affected by the existence of unions, the proportion of workers in unions, and laws, amongst all others. These factors are lumped together into one variable, T , which is assumed constant at T_0 .

If unemployment is low, workers can easily transfer between jobs, and so are less afraid to demand a rise in wages. Higher unemployment, conversely, implies firms have a greater bargaining strength, thus leading to the Phillips Curve as a ‘wage bargaining relationship’. We may incorporate this into the Keynesian view:



With AD_1 , we are in equilibrium. If the government thinks unemployment is too high, following the original Keynesian policy it increases g until the economy is on AD_2 . This raises output, reduces unemployment, increases the bargaining power of workers rather than employers, and moves the economy up the Phillips Curve. Wages thus increase.

Because of the wage increase, the non-vertical section of the aggregate supply curve must shift up, at which point $\Delta W = 0$, and the economy is once again in equilibrium, but at a higher price level. If the government repeats the increase in their own expenditure, the process repeats, settling at a higher price level again.

Under the Monetarist view, the point on the Phillips Curve at ΔW_1 is always unstable, as the economy only ever reaches that point when expectations are wrong. Under Keynes, however, as long as government spending increases by the same proportion each year, this point can be stable. Naturally, however, this is an unworkable position.

Early Keynesian Algebra

Wages follow a relatively simple model:

$$\Delta W_t = \alpha_0 - \alpha_1 U_t + \beta T_t$$

Thus changes in wages depend on a fixed constant, the present level of unemployment, and wage bargaining.

$$\Delta P_t = \Delta W_t - \Delta q_t$$

(where q is productivity). Therefore, if wages go up, so must prices.

From these two equations, we get:

$$\Delta P_t = \alpha_0 - \alpha_1 U_t + \beta T_t - \Delta q_t$$

The level of unemployment will thus be higher if:

- T is higher (trade unions are stronger, and so on)
- inflation is lower
- productivity increases are lower

The government can choose which combination of unemployment and inflation it prefers.

Later Keynesian Algebra (in Response to Milton Friedman)

People and trade unions are not interested in increases in nominal wage, but in real wage:

$$\Delta W_t = \alpha_0 - \alpha_1 U_t + \beta T_t + \Delta P_{t-1}$$

so workers try to catch up with inflation last period by adding the necessary amount to the change in wages. Substituting as before,

$$\Delta P_t = \alpha_0 - \alpha_1 U_t + \beta T_t + \Delta P_{t-1} - \Delta q_t$$

and we have an equation to determine the Non Accelerating Inflation Rate of Unemployment, or NAIRU for short.

We can set inflation to be the same as last period, so

$$0 = \alpha_0 - \alpha_1 U_t + \beta T_t - \Delta q_t$$

and

$$U_t = \frac{\alpha_0 + \beta T_t - \Delta q_t}{\alpha_1}$$

which is the only level of unemployment at which the economy is stable, with inflation neither accelerating nor decelerating.

This leads to a policy similar to the natural rate hypothesis in Monetarism, but through a different mechanism.