

## NOTES ON NOMINAL WAGES AND EMPLOYMENT

Paul Krugman 12/2/08

Keynes's chapter on money-wages and employment is hard for modern economists to read. So I thought it might be helpful to restate it in terms of the standard textbook aggregate-demand-aggregate-supply framework.

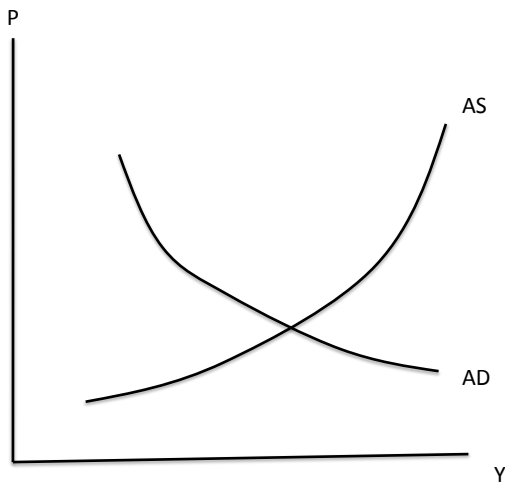
We start with a production function, determining output as a function of employment:

$$Y = F(N)$$

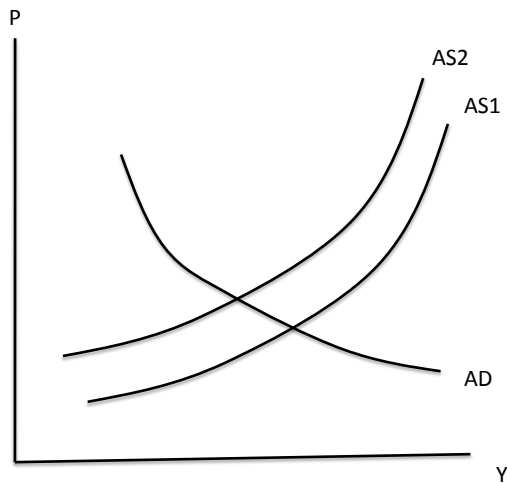
With competitive markets, workers will be hired up to the point at which the real wage equals the marginal product of labor. (In the real world things are more complicated, but never mind.) If workers' contracts directly determined real wages, that would be the end of the story. But if workers negotiate a nominal wage instead, what we get is an aggregate supply curve that depends on the ratio of the aggregate price level to the wage rate:

$$Y = S(P/W)$$

Our standard model then says that macroeconomic equilibrium is determined by the intersection of this AS curve with an AD curve, representing the demand side of the economy. So we get a diagram like this:



Now suppose that the evil New Deal pushes up nominal wages. This shifts the AS curve up, which leads to a higher price level and lower output:



And that's the story as people like Shlaes tell it, although probably without really understanding the logic.

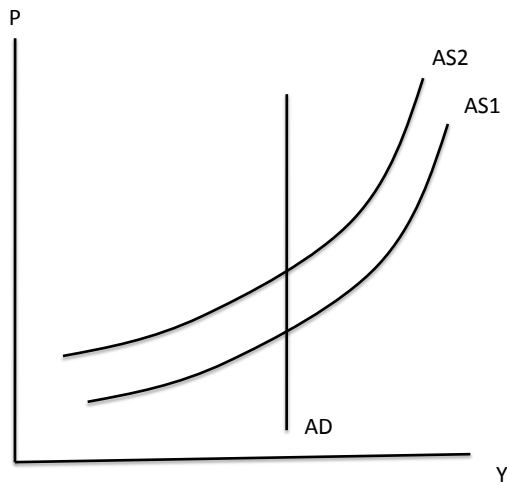
But what is the crucial feature of this story? It requires that the aggregate demand curve be downward sloping. And why should that be true?

Well, in normal times the AD curve slopes down, we think, because other things equal a higher price level increases the demand for money, which drives up interest rates, which reduces desired spending. (In terms of IS-LM analysis, higher P leads to lower M/P which shifts LM left.)

But in liquidity trap conditions, the interest rate isn't affected at the margin by either the supply or the demand for money – it's hard up against the zero bound. And as a result the usual explanation for the downward slope of the AD curve doesn't work. You can appeal to the Pigou effect, I guess – but against that you have to put Fisherian debt deflation. In a liquidity trap, the AD curve is at least as likely to be upward-sloping as it is to be downward-sloping.

And in the mid-1930s America was very much in a liquidity trap, with the [interest rate on 3-month T-bills](#) only 0.14 percent.

Suppose that the AD curve is vertical. Then the picture looks like this:



And there's no adverse effect at all of the wage increase on output.

The key point, then, is that the reality of a liquidity trap in the 1930s has crucial implications for what we think about the effects of policies like the NIRA. People who assert that New Deal support for wages made the Depression much worse aren't thinking it through. They're implicitly assuming – not demonstrating – that the AD curve had a “normal” slope, even in the depths of the Depression. But it didn't.