

The **price-setting relation** in equation (7.6) is drawn as the horizontal line PS (for price setting) in Figure 7-6. The real wage implied by price setting is $1/(1 + m)$; it does not depend on the unemployment rate.

Equilibrium Real Wages and Unemployment

Equilibrium in the labor market requires that the real wage chosen in wage setting be equal to the real wage implied by price setting. (This way of stating equilibrium may sound strange if you learned to think in terms of labor supply and labor demand in your microeconomics course. The relation between wage setting and price setting, on the one hand, and labor supply and labor demand, on the other, is closer than it looks at first and is explored further in the appendix at the end of this chapter.) In Figure 7-6, equilibrium is therefore given by point A , and the equilibrium unemployment rate is given by u_n .

We can also characterize the equilibrium unemployment rate algebraically; eliminating W/P between equations (7.4) and (7.6) gives

$$F(u_n, z) = \frac{1}{1 + m} \quad (7.7)$$

The equilibrium unemployment rate, u_n , is such that the real wage chosen in wage setting—the left side of equation (7.7)—is equal to the real wage implied by price setting—the right side of equation (7.7).

The equilibrium unemployment rate u_n is called the **natural rate of unemployment** (which is why we have used the subscript n to denote it). The terminology has become standard, so we shall adopt it, but this is actually a bad choice of words. The word *natural* suggests a constant of nature, one that is unaffected by institutions and policy. As its derivation makes clear, however, the natural rate of unemployment is anything but natural. The positions of the wage-setting and price-setting curves, and thus the equilibrium unemployment rate, depend on both z and m . Consider two examples:

Natural in Webster's Dictionary, means "in a state provided by nature, without man-made changes."

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An increase in unemployment benefits shifts the wage setting curve up. The economy moves along the price-setting curve. Equilibrium unemployment increases. Does this imply that unemployment benefits are necessarily a bad idea? (Hint: No, but they have side effects.)

This has led some economists to call unemployment a "discipline device." Higher unemployment is the economic device that forces wages to correspond to what firms are willing to pay.

An increase in the markup shifts the price setting curve (line in this case). The economy moves along the wage-setting curve. Equilibrium unemployment increases.

■ An increase in unemployment benefits. An increase in unemployment benefits can be represented by an increase in z . Because an increase in benefits makes the prospect of unemployment less painful, it increases the wage set by wage setters at a given unemployment rate. It shifts the wage-setting relation up, from WS to WS' in Figure 7-7. The economy moves along the PS line, from A to A' . The natural rate of unemployment increases from u_n to u'_n .

In words: At a given unemployment rate, higher unemployment benefits lead to a higher real wage. A higher unemployment rate brings the real wage back to what firms are willing to pay.

■ A less stringent enforcement of existing antitrust legislation. To the extent that this allows firms to collude more easily and increase their market power, it will lead to an increase in their markup an increase in m . The increase in m implies a decrease in the real wage paid by firms, and so it shifts the price-setting relation down, from PS to PS' in Figure 7-8. The economy moves along WS . The equilibrium moves from A to A' , and the natural rate of unemployment increases from u_n to u'_n .

An increase in markups decreases the real wage and leads to an increase in the natural rate of unemployment. By letting firms increase their prices given the wage, less stringent enforcement of antitrust legislation leads to a decrease in the real wage. Higher unemployment is required to make workers accept this lower real wage, leading to an increase in the natural rate of unemployment.

Factors like the generosity of unemployment benefits or antitrust legislation can hardly be thought of as the result of nature. Rather, they reflect various characteristics

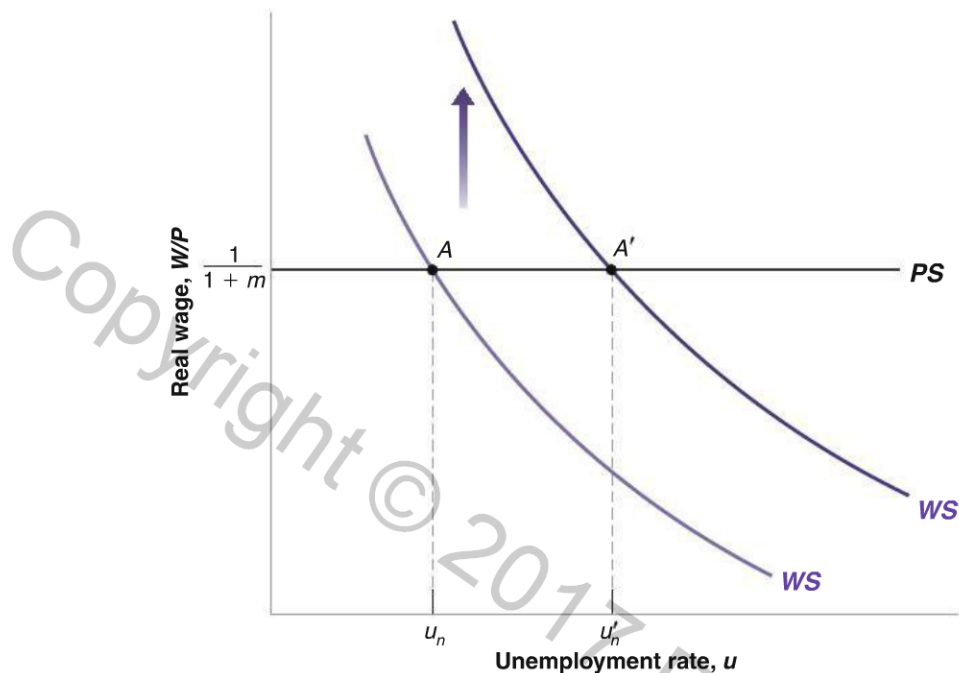


Figure 7-7

Unemployment Benefits and the Natural Rate of Unemployment

An increase in unemployment benefits leads to an increase in the natural rate of unemployment.

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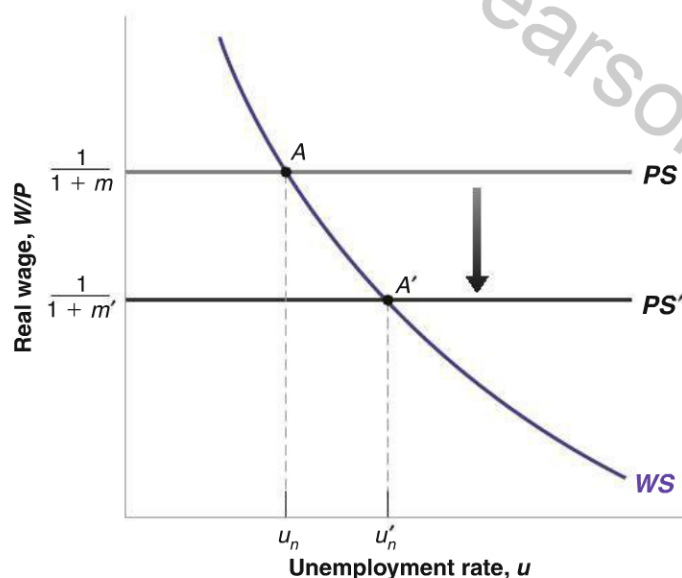


Figure 7-8

Markups and the Natural Rate of Unemployment

An increase in the markup leads to an increase in the natural rate of unemployment.

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of the structure of the economy. For that reason, a better name for the equilibrium rate of unemployment would be the **structural rate of unemployment**, but so far the name has not caught on.

7-6 Where We Go from Here

We have just seen how equilibrium in the labor market determines the equilibrium unemployment rate (we have called it the *natural rate of unemployment*). Although we leave a precise derivation to Chapter 9, it is clear, for a given labor force, the unemployment rate determines the level of employment, and that, given the production function, the

◀ This name has been suggested by Edmund Phelps, from Columbia University. Phelps was awarded the Nobel Prize in 2006. For more on some of his contributions, see Chapters 8 and 24.