

# Lecture Notes Labour Market

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*Draft Notes for Chapter 6 (Blanchard, 2013)*

In so far we have focused on two variables- interest rate, and output. Time to learn something about costs that firms incur. In particular, we learn about one specific type of cost in this lecture: **wage bill**. How is wage determined? How does that matter for economy? These are some of the questions that we will (try to) answer here.

## 1. Ingredients

The aggregate nominal wage ( $W$ ) in an economy depends upon:

- Expected price level ( $P^e$ )
  - When  $\uparrow P^e$ , workers will demand higher wage. Why? Example: assume that there is just one good in the economy, namely, cup of coffee. A cup of coffee costs ₹150 today, and its expected price next

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year is going to be ₹200. Wage demanded by the labour will be 33% higher than the current wage (why?).

- The unemployment rate ( $u$ )
  - When the unemployment rate goes up, it is a bad news for the labour market signalling the weakening of labour bargaining power. If the bargaining power of the labour diminishes, the wage is bound to go down.
- A set of assorted factors other than the above ( $z$ ).
  - Unemployment insurance
  - Minimum wage laws.

We can write down the wage equation now.

$$W = P^e \cdot F(u, z) \tag{1}$$

## 2. Price Determination

Assumptions:

- Labour productivity is constant.
- There is production of one good in the economy.
- Labour is the only input involved in the production.

Let  $Y$  be the total production/output.  $Y = AN$  where  $A$  is the measure of labour productivity. Let  $A = 1$ . Therefore,  $Y = N$ . The cost of producing an additional unit is equal to wage  $W$ . If the market is perfectly competitive,  $P = W$ , but we will visualize a market where firms may enjoy markup. We can write that down as

$$P = (1 + m) \cdot W \quad (2)$$

### 3. The Structural Unemployment Rate

The Wage Setting Relation:

$$\frac{W}{P} = f(u, z) \quad (3)$$

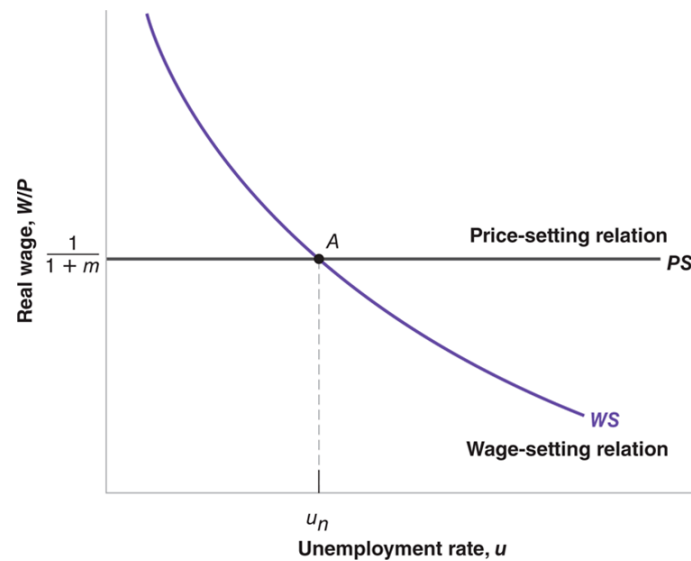
The Price Setting Relation: (we will modify equation 2)

$$\frac{W}{P} = \frac{1}{1 + m} \quad (4)$$

Equation 4 tells you something important about the labour market. When firms' cost increases, they can afford you to keep your nominal wage the same and raise the price of their goods. Effectively, the real wage will come down. We can write down the equilibrium condition as.

$$F(u_n, z) = \frac{1}{1 + m} \quad (5)$$

Take a look at the graph below. The equilibrium unemployment rate ( $u_n$ ) shown is the **structural unemployment rate**.



## 4. Shifts in the Labour Market

- What if the unemployment protection increases? This will tilt the power balance towards the labour. They can afford to stay out of the labour market if the wage offered by firms is not substantially higher than the unemployment insurance. The wage setting curve in the above graph moves to the right. Net result:  $\uparrow u_n$ .
- What if the firm markup rises? This will make the firms more powerful. They can afford to have lower wage bill. The price setting curve shifts **downwards**. Net result:  $\uparrow u_n$ .

## 5. Unemployment, and Output

We know that the total labour force ( $L$ ) includes the employed ( $N$ ) plus the unemployed ( $U$ ). Let us write this down mathematically.  $L = U + N$

$$\frac{U}{L} + \frac{N}{L} = 1$$

$$u + \frac{N}{L} = 1$$

We know that  $Y = N$ . Therefore,

$$u = 1 - \frac{Y}{L} \tag{6}$$

We can rewrite equation 5 by plugging in 6.

$$F\left(1 - \frac{Y}{L}, z\right) = \frac{1}{1 + m} \tag{7}$$

When  $u = u_n$ , the output level will be  $Y = Y_n$ . This will be known as the structural output in the economy.