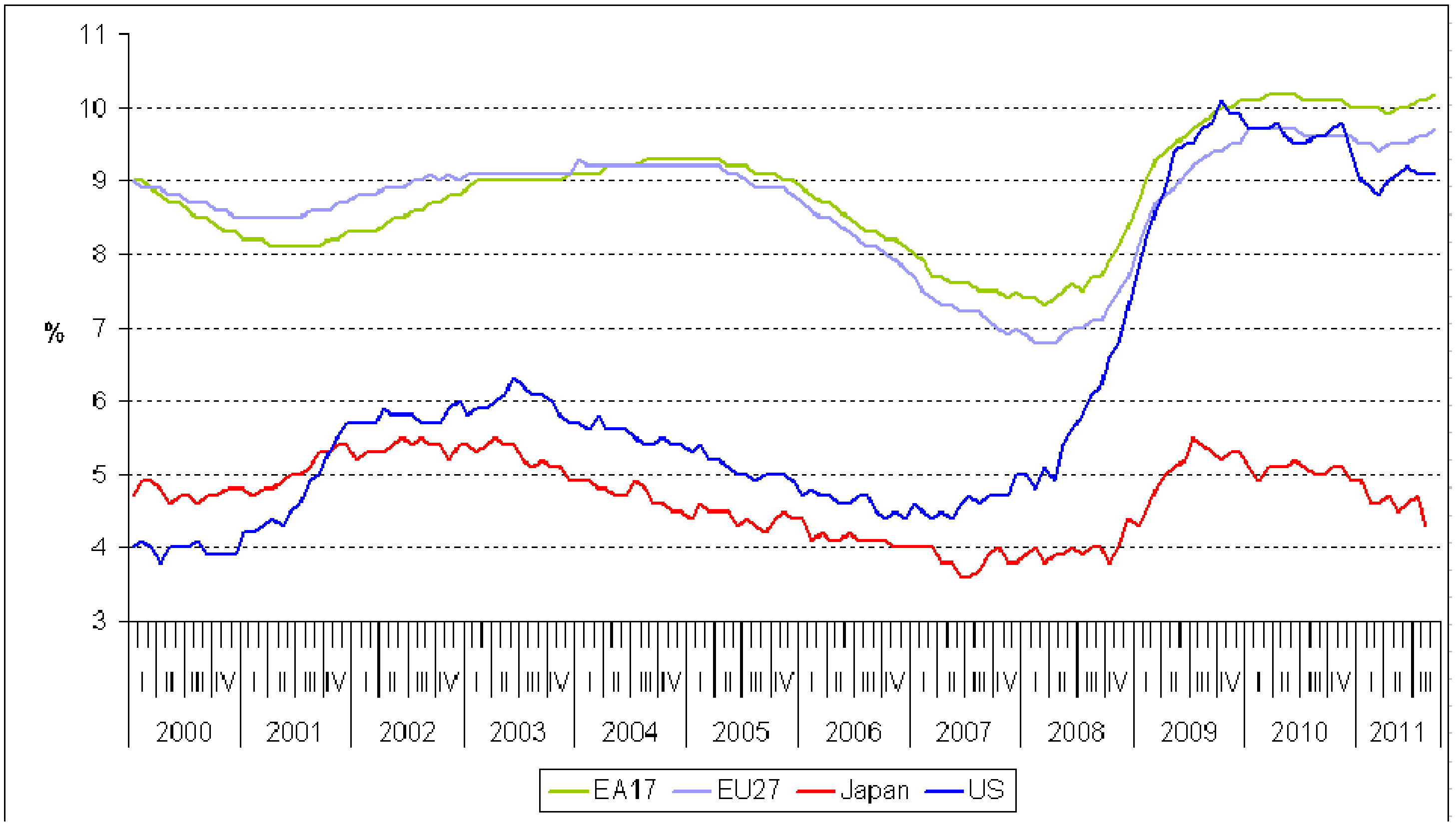
19 Unemployment in Europe

Initial increase in the 70s: due to adverse (common) shocks from oil price increases to the slowdown in productivity growth.

Persistent high unemployment in the 80s: capital accumulation and insiders in bargaining.

In the 90s, increased focus on the role of institutions. The increase in unemployment led to, in most countries, changes in institutions as most goverments tried to limit the increase in unemployment through employment protection and more generous unemployment insurance.

Unemployment rates 2000-2011



Unions and bargaining

The efficiency wage theories are best suited to economies with decentralized wage determination.

Unions will consider both high wages and high employment (of their members) as beneficial. However, some unemployment is needed for unions to be moderate in their wage bargaining. The bargaining outcome will depend on

* bargaining power; depends on the union's and the firm' discount factors (high discounting - low bargaining power)

* the threat-point; the disutility of a conflict (strike, lock-out)

* the union's preferences

Types of bargaining

Union models are based on two types of bargaining between workers and firms:

1. bargain about wage - firms determine employment

2. bargain about both wage and employment

From ECON2310: Unions set wages as a mark-up over expected prices, the size of the mark-up being determined by bargaining strength and outside options (unemployment). Firms set prices as a mark-up over expected wages.

The response to adverse supply shocks

Consider firms with constant returns to labor

$$\begin{aligned} Y &= AN \\ \log Y &= \log A + \log N \\ y &= a + n \end{aligned}$$

where y is log output, n is log employment, and a is log productivity. Assuming either competition in the goods market or a constant mark-up, the wage paid by firms (warranted wage) is given by

$$w - p = a$$

where w is log nominal wage, p is the price level. Assume further that a follows

$$a = a_{-1} + \varepsilon$$

In other words technological change follows a random walk, and a negative ε will represent an unexpected productivity shock.

Assume the bargained wage is given by

$$\begin{aligned} w &= p + Ea - \beta u \\ w - p &= Ea - \beta u \end{aligned}$$

The bargained (real) wage depends on expected productivity Ea, and is a decreasing function of the unemployment rate $\left(W/P = EA \cdot e^{-\beta u}\right)$.

Assume that expected productivity adjusts over time to actual productivity according to

$$Ea = \lambda Ea_{-1} + (1 - \lambda)\, a$$

where $(1 - \lambda)$ is the speed of adjustment of expected to actual productivity.

Combining the equations for the warranted and the bargained wage gives

$$u = -\frac{1}{\beta}\left(a - Ea\right)$$

An unexpected decrease in productivity leads to an increase in unemployment. Combining the equation for expected productivity with the equation above gives the behavior of the natural rate of unemployment

$$\begin{aligned} u &= -\frac{1}{\beta}\left[a - \lambda E a_{-1} + (1-\lambda)\, a\right] \\ u &= -\frac{1}{\beta}\left[a - \lambda\left(\beta u_{-1} + a_{-1}\right) + (1-\lambda)\, a\right] \\ u &= \lambda u_{-1} - \frac{\lambda}{\beta}\varepsilon \end{aligned}$$

A permanent increase in productivity increases equilibrium unemployment for some time, but not forever. λ and β capture the two dimentions of real rigidities.

Now introduce nominal rigidities. Replace the equation for the bargained wage by

$$w = Ep + Ea - \beta u$$

The nominal wage is set on the basis both of the expected price level and expected productivity. Combining the equations for the warranted and bargained wage gives

$$u = \frac{1}{\beta}\left[(a - Ea) + (p - Ep)\right]$$

The central implication is that, in the presence of nominal rigidities, monetary policy can, to the extent that it can increase $(p - Ep)$, potentially offset the adverse effects of negative productivity shocks.

Sources of persistence

Why did unemployment continue to increase throughout the 1980s?

High inflation led to contractionary monetary policies driving down inflation, but at the expense of higher unemployment.

For the rest of the decade, inflation was roughly stable so why did the high unemployment rates persist?

- capital accumulation
- the role of insiders in collective bargaining

Capital accumulation

Assume that the production function is Cobb-Douglas in capital and labor, and constant returns to scale

$$y = \alpha\,(a + n) + (1 - \alpha)\,k$$

where k is the log of the capital stock, and a is the index of Harrod neutral technology. Assuming perfect competition in the goods market or a constant mark-up, the warranted real wage (in the short run) is given by

$$w - p = (\alpha - 1)\,(n - k + a) + a$$

For a given capital stock, the higher is employment, the lower is the marginal product of labor, the lower is the warranted real wage.

The profit rate associated with a given real wage is given by the factor price frontier relation

$$\pi = -\frac{\alpha}{1-\alpha}(w - p - a)$$

where π is the log of the profit rate. Let r be the user cost of capital. If π is greater than r, k grows over time (capital accumulation). In the long run, the profit rate must be equal to the user cost, so the warranted real wage is given by

$$\begin{aligned} r &= -\frac{\alpha}{1-\alpha}(w - p - a) \\ w - p &= a + \frac{1-\alpha}{\alpha} r \end{aligned}$$

Assume the bargained wage is given as before

$$w - Ep = Ea - \beta u$$

Let $\bar{n}$ be the log of the total labor force. Then $u \approx \bar{n} - n$. Setting the equation for the warranted real wage in the short run equal to the bargained wage gives

$$p + (\alpha - 1)(\bar{n} - k + a) - (\alpha - 1)u + a = Ep + Ea - \beta u$$

Or, reorganizing

$$u = -\frac{1}{1 - \alpha + \beta}\left[(p - Ep) + (a - Ea) + (\alpha - 1)(\bar{n} - k + a)\right]$$

In the short run, unemployment depends, as before on $(p - Ep)$ and $(a - Ea)$. But, now it also depends on the capital stock. The lower the capital stock, the lower the demand for labor, the higher the employment rate.

Insider effects, hysteresis and persistence

Assume that technology, and so the warranted wage, are the same as above

$$
\begin{aligned}
w - p &= (\alpha - 1)(n - k + a) + a \\
w - p &= (\alpha - 1)(n - k) + \alpha a
\end{aligned}
$$

To focus on the dynamics of collective bargaining, we turn off capital accumulation as a source to persistence, and assume the capital stock is fixed.

Think of wages being set by a monopoly union that chooses the wage, and then lets the firm decide about employment. Suppose the nominal wage is chosen so that, in expected value, the membership of the union is employed

$$
w \mid En = m
$$

where m is log membership.

Suppose that membership is given by

$$m = n_{-1} + \theta \left(\bar{n} - n_{-1} \right)$$

If $\theta = 0$, then membership is just equal to employment last period: the union cares only about the unemployed. If $0 < \theta < 1$, the union puts some weight on the employment of the unemployed, but less on those already employed.

Assume that the union chooses the nominal wage, based on the warranted wage relation above, and based on expectations of both technology and the price level, so

$$w = Ep + (\alpha - 1) \left[n_{-1} + \theta \left(\bar{n} - n_{-1} - k \right) \right] + \alpha Ea$$

Combining the equations for the warranted and the bargained wage

$$u = (1 - \theta) \, u_{-1} - \frac{1}{1 - \alpha} \left[(p - Ep) + \alpha \left(a - Ea \right) \right]$$