# Monetary Policy and Unemployment

## Data Transformations:

1) Policy rate (is in rates, no transformation, r(t))

2) CPI (inflation pi(t)=100\*log(CPI)-100\* log(CPI(-4))

3) Real GDP (output gap, ygap(t)=100\*ln(GDP)-hpfilter(100\*ln(GDP)), where hpfilter is the Hodrick-Prescott filter in Eviews

4) Unemployment (is in rates, no transformation, u(t))

5) Vacancies (u(t)=Dv(t)=100\*ln(Vacancies)-100\*ln(Vacancies(-4))

6) Real Wages (u(t)=Dw(t)=100\*ln(Real Wages)-100\*ln(Real Wages(-4))

7) Average hours (u(t)=DlabProd(t)=100\*ln(GDP/Hours)-100\*(GDP(-4)/Hours(-4))

## A Two Steps Procedure: Taylor Rule

### Identification of the Monetary policy Shock

This is going to be a two steps regression exercise. In the first step a Taylor Rule reaction function is going to be estimated.

r(t)=constant+gammaPi\*pi(t)+gammaY\*ygap(t)+mp(t)

From this step the monetary policy shock (mp(t)) is going to be identified. In the second step, the monetary policy shock is regressed on a number of labour market variables say

u(t)=constant+rho\*u(t-1)+beta\*mp(t)+v(t)

Dv (t)=constant+rho\* Dv (t-1)+beta\*mp(t)+v(t)

Dw (t)=constant+rho\* Dw (t-1)+beta\*mp(t)+v(t)

DlabProd (t)=constant+rho\* DlabProd (t-1)+beta\*mp(t)+v(t)

The effect of monetary policy on labour market quantities is given by beta/(1-rho)

## **One Step Procedure: VAR**

**Alternatively, you can estimate a VAR model where all variables are used. The variables must be ordered as follows**

1. **GDP**
2. **CPI**
3. **Unemployment**
4. **Wages**
5. **Labour productivity**
6. **Policy rate**

**The shock is identified via Cholesky**

**Alternatively, you could try:**

1. **Monetary policy shock (mp(t) from the previous section)**
2. **GDP**
3. **CPI**
4. **Unemployment**
5. **Wages**
6. **Labour productivity**

**The shock is identified via Cholesky**