

# The Cyclicalities of Wages, Job Duration and Match Quality

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### Motivation

The relatively volatile behavior of labor market activity over the business cycle is still not fully understood.

Using newly available matched employer-employee datasets can generate empirical insights needed to guide theory.

### Data

Administrative German data, the LIAB Longitudinal Model 1993-2010.

Establishments: all panel cases of the IAB Establishment Panel for 2000-2008.

Individuals: all employees (for at least a day) of these establishments during 1999-2009.

Data on individuals: the complete employment biographies for 1993-2010.

Allows detailed controls and differentiation between hires/separations from/into employment (E) and unemployment (U).

Frequency: monthly. Period: 1999-2009, 2 full cycles.

### Main Findings

Wages of new hires appear to be countercyclical - higher when the unemployment rate is higher.

I propose an explanation based on countercyclical match quality.

I find additional empirical support for my hypothesis.

And show that a DMP-type model incorporating the proposed mechanism can account for the empirical findings.

### Wage Cyclicity - Specification

$$\log w_{it} = \pi u_t + \pi_E D_E(i, t) u_t + \pi_U D_U(i, t) u_t + \gamma'_x x_{it} + \epsilon_{it}$$

$w_{it}$  is the real wage paid in month  $t$  to individual  $i$

$u_t$  is the unemployment rate

$D_E(i, t)$ ,  $D_U(i, t)$  are indicators for new hires from E, U

$x_{it}$  is a vector of controls:

a time trend (calendar-month dummies and a quadratic polynomial in time),

indicators for new hires from E, U,

for observable worker heterogeneity (an education-specific cubic polynomial in age, and a cubic polynomial in tenure when applicable),

worker, occupation, firm fixed effects

### Wage Cyclicity - Results

$\hat{\pi}$  is negative - procyclicality of wages for stayers

$\hat{\pi}_U + \pi$  is positive - countercyclicity of wages for hires from U

$\hat{\pi}_E + \hat{\pi} > 0$  is positive - countercyclicity of wages for hires from E

$\hat{\pi}_E$  is larger than  $\hat{\pi}_U$  - countercyclicity is stronger for hires from E than from U

### Separation Hazard vs Initial Unemployment - Specification

Stratified Cox Model

$$\log h_{it} = \log h_{j(i)t} + \alpha u_{0j(i)} + \gamma'_x x_{it} + \epsilon_{it}$$

$h_{it}$  is the hazard rate of separation in month  $t$  for worker  $i$

$h_{j(i)t}$  is the hazard rate of separation in month  $t$  for all workers in firm  $j(i)$

$u_{0j(i)}$  is the initial unemployment rate

$x_{it}$  is a vector of controls:

a time trend,

initial wage

current unemployment rate and its square,

controls for observable worker heterogeneity

### Separation Hazard vs Initial Unemployment - Results

$\hat{\alpha}$  is negative and statistically significant for separations into U, but insignificant for separations to E, for both types of hires

### Model

A DMP-type random search model.

A worker and firm Nash bargain over surplus.

Output in a worker-firm pair depends on aggregate and match-specific productivity.

Endogenous vacancy posting.

Training/startup cost incurred after job creation.

Endogenous separations.

A surplus function determines the equilibrium.

### Mechanism

The surplus function increases in both components of productivity.

The threshold for a match-specific productivity that leads to job creation / survival depends on aggregate productivity.

The lowest match-specific productivity in new matches / surviving matches is higher when aggregate productivity is lower.

Countercyclical bias in the estimates of cyclicity!

### Implications

It is not enough to look at the estimates of wages cyclicity to determine how incentives for job creation behave over the business cycle

The cleansing effect of recessions is apparent - in recessions, the worst new potential matches do not lead to job creation, and the worst extant matches are destroyed.

The sullyng effect of recessions might arise once job-to-job transitions are included - in recessions, job-to-job transitions are less frequent and the threshold for a transition might be higher.

### References

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