Cyclicality and Asymmetry of the User Cost of Labor: Evidence and Theory

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Motivation

✓ Observed earnings ≠ price of labor, in the presence of a long-term contract.
✓ User cost of labor (UCL) measures the ``allocative'' wage, but faces empirical challenges.

Summary of the paper

✓ Address the empirical challenges of the UCL by exploiting Japanese wage data.
  - Challenge 1: Limited sample size---use large-scale Japanese wage survey.
  - Challenge 2: Upgrading of job-match quality through job changes---focus on new school graduates.
✓ The estimated UCL is highly cyclical after correcting the cyclical upgrading, while it is downwardly rigid.
✓ Propose a directed search model with adverse selection to account for the empirical findings.
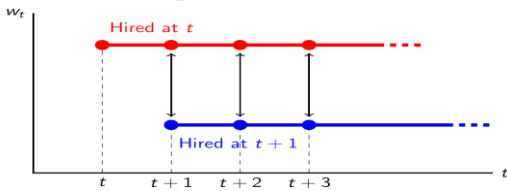
Concept

✓ UCL: labor as a long-term asset
$$UCL_t = PDV_t - E_t[\beta(1-s)PDV_{t+1}]$$
where $PDV_t = E_t\left[\sum_{j=0}^{\infty}\beta^j(1-s)^j w_{t,t+j}\right]$
$w_{t,t+j}$: wage at $t+j$ of those hired at t, s: separation rate.

✓ UCL = new-hire wage + cohort wage differences.

$$UCL_t = w_t^{new} + E_t\left[\sum_{j=0}^{\infty}\beta^j(1-s)^j(w_{t,t+j} - w_{t+1,t+j})\right]$$
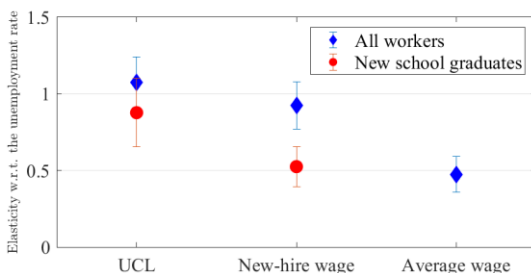

Data

✓ Basic Survey on Wage Structure (BSWS) of Japan
  - Nationwide representative survey.
  - Earnings and hours worked available for
    - each year of service; and
    - firm-worker characteristics.
    ➤ Construct the UCL for 18 categories
      (gender×education×firm size)
  - Worker's age is also available.
    ➤ Identify new graduates from school
      (e.g., 18 years old with high school degree)

Empirical result

✓ Cyclicality of the UCL
  - The UCL is highly procyclical after correcting the cyclical changes in job-match quality (``new school graduates'').
  - The new-hire wage is no longer more cyclical than the average wage after the correction.
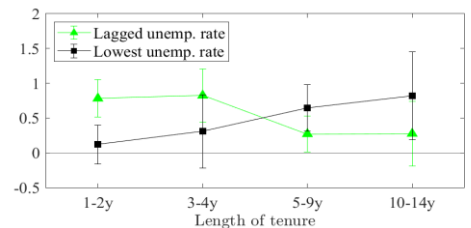

Notes: Semi-elasticity with respect to 1 s.d. of the unemployment rate (sign flipped). Both wage measures and the unemployment rate are HP-filtered. Sample: 1981-2010.
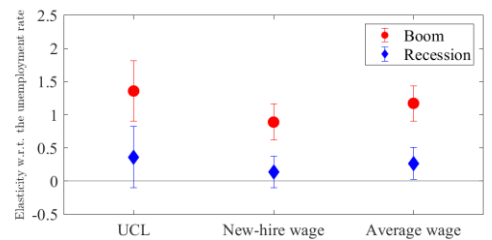
Empirical result (cont.)

✓ History dependence of incumbent-worker wage
  - The UCL is more procyclical than the new-hire wage due to sizable and persistent cohort wage differences.

✓ Asymmetry of the UCL
  - The UCL is not responsive in recessions.

Model

✓ Setting
  - Directed search + wage contract (Rudanko 2009)
  - Skilled/unskilled workers, high/low prod. firms.
  - H firms can operate only if matched with S workers, but screening is imperfect (adverse selection).

✓ Wage as a screening tool
  - H firms maintain high wages to keep their submarket "too competitive" for unskilled workers.
  - H firms can still attract S workers, who face a higher job-finding probability than N workers.
  - Single wage policy attains a separation equilibrium.

✓ Model simulation
  - The UCL tracks underlying productivity in booms, but does not in recessions.