Leveraging on human capital: Labor rigidities and sorting over the business cycle

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ABSTRACT: Labor market sorting matters for the costs of aggregate fluctuations and is a key factor for human capital accumulation. We build a labor search model to study output, employment and welfare jointly, and to assess the importance of labor market sorting dynamics as a driver of reallocation and productivity growth. The model is estimated on Italian administrative data.

The Italian labor market

- Workers and firms are, on average, positively assorted in the Italian labor market
- Business cycle fluctuations alter their sorting: after recessions, workers end up in firms that are less productive, and experience lower wage growth
- This is at the root of recessionary scarring effects, and has aggregate implications

The Model

Properties of the model

Proposition 1. The optimal search strategy, \( y(t) \), (i) is unique, (ii) weakly increasing in \( V \) and (iii) increasing in aggregate productivity, \( a \).

- Intuition (i): being in a good contract - high \( V \) - increases the outside options.
- Intuition (ii): in good times - high \( a \) - firms open more vacancies, job-finding probability increases, optimal to try for better submarkets

Proposition 2. The optimal contract with bilateral lack of commitment delivers the following wage path:

\[ \frac{\Delta \log (W(t))}{\Delta t} = \frac{1}{\Omega(\theta_1)} \left( \frac{1}{\Omega(\theta_2)} \right) \]

with \( \theta = (g(y, h), \tau + 1, W_{t+1}(\Omega)) \) being the definition of the relevant state and \( W_t \) is the wage paid in the future state, \( \beta \) is the retention probability and \( J_1(\theta) \) is the value of the match to the future state.

- Wage Backloading: Risk-neutrality + retention incentives → optimal to front-load profits.
- Worker Insurance: Contract links wage growth to profit realizations.

The contract provides insurance, firms profit off implicit premia. → wage rigidity.

Timeline

Search behaviour of employed workers

- Workers direct their search towards "better" firms in good times

Model vs Data

- Calibration to assess the behaviour of the model based on Italian admin data

Wage distributions

Average firm quality and human capital dynamics around the recession

- As in the data, sorting is strongly counter-cyclical
- The recession is sapping, reducing the average firm quality in the economy
- This reduction impacts the average human capital that, after an initial increase due to separation of less viable matches, sets at a lower level even two years after the initial shock

Average loss for cohorts that enter during the recession and aggregate output dynamics

- Cohorts that enter the economy during the recession, compared to the normal scenario experience a loss in wages that persists for approximately five years in their careers
- Output falls during the recession and remains significantly below the level attained in the normal scenario up to two years after the initial shock

Conclusions

- Human capital and contractual rigidities are key drivers of worker heterogeneity in the labor market
- These elements are key ingredients for workers' life-cycles as well as aggregate dynamics
- Next steps: full quantification of business cycle costs as function of labor market sorting and policy counterfactuals (e.g. aggregate effects of furlough schemes)