

Job Market Transitions

IDENTIFICATION FROM CROSS-SECTIONAL DATA

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EcoMod2026



Motivation: labor flows and public data

Standard approach

- Estimate job finding and separation from unemployment stocks and short unemployment duration.
- Treat the labor market as a two-state system: employment and unemployment.
- Attractive because the data are public and widely available.

What this leaves out

- Inactivity is an economically meaningful state, not just a residual.
- Job-to-job moves matter for employment turnover, especially in expansions.
- Published gross flows are not always available and may be inconsistent with aggregate stocks.

Contribution: use job tenure and inactivity stocks to recover richer macro-relevant transition objects from public cross-section data.

The literature: stocks and flows

- **Two-state stock-flow measurement:** Shimer (2005, 2012), Fujita and Ramey (2009), Elsby, Michaels and Solon (2009).
- **Cross-country flow measurement:** Hobijn and Sahin (2009), Elsby, Hobijn and Sahin (2013).
- **Participation margin:** Elsby, Hobijn and Sahin (2015), Campolmi and Gnocchi (2014).
- **Gross-flow consistency and European flows:** Frazis et al. (2005), Casado, Fernandez and Jimeno (2015), Gomes (2012).
- **Job-to-job flows and recent multi-state work:** Krause and Lubik (2006), Mukoyama (2014), Karahan et al. (2017), Fiaschi and Tealdi (2021), Carrillo-Tudela and Visschers (2023).

A labor market with searchers and activity

Observed quarterly stocks

- Employment: n
- Unemployment: u
- Inactivity: i
- Short-tenure employment: n^s

Latent rates

- Job separation: ρ
- Search participation: λ
- Job finding among searchers: f

Potential searchers

$$\rho n + u + i$$

Searchers

$$s = \lambda (\rho n + u + i)$$

Time aggregation: assume continuous flows as in Shimer, aggregate to a quarterly frequency by assuming constant rates within the quarter

Identification: job tenure

1. Use short-tenure employment to identify job survival

$$e^{-\rho_t} = \frac{n_t - n_t^s}{n_{t-1}}$$

2. Use the employment law of motion to recover $\eta_t = \lambda_t f_t$

$$n_t = \frac{\eta_t}{\phi_t} \left(1 - e^{-\phi_t}\right) + e^{-\phi_t} n_{t-1}, \quad \phi_t = \rho_t + \eta_t(1 - \rho_t)$$

3. Use inactivity to separate participation from job finding

$$i_t = (1 - \lambda_t)(\rho_t n_t + 1 - n_t) \Rightarrow f_t = \frac{\eta_t}{\lambda_t}$$

Result: public stocks and job tenure are enough to estimate separation, search participation, and average job finding rates.

Short-tenure employment records new jobs regardless of where workers came from.

$$f_t = \frac{e_t^s}{e_t^s + u_t}$$

Captures three sources of new jobs

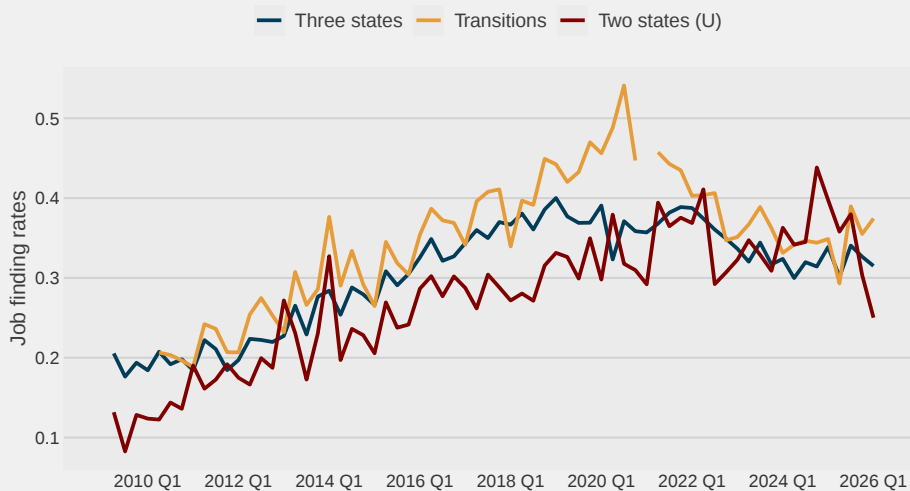
- unemployment to employment,
- inactivity to employment,
- job-to-job moves.

Unemployment duration mainly sees exits from unemployment, so it can miss turnover in expansions.

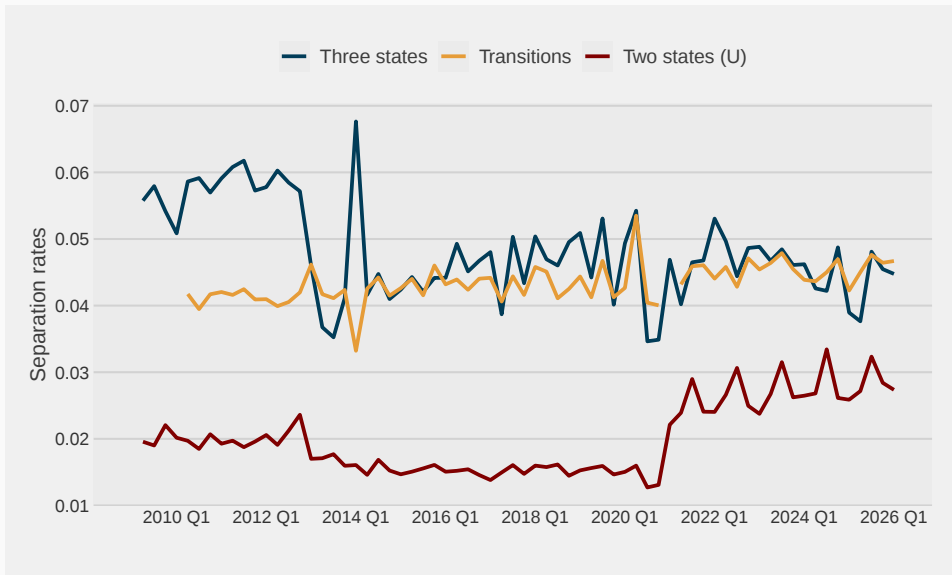
Compare estimated rates from:

- three state method,
- two states with unemployment duration,
- labor flow transition data.

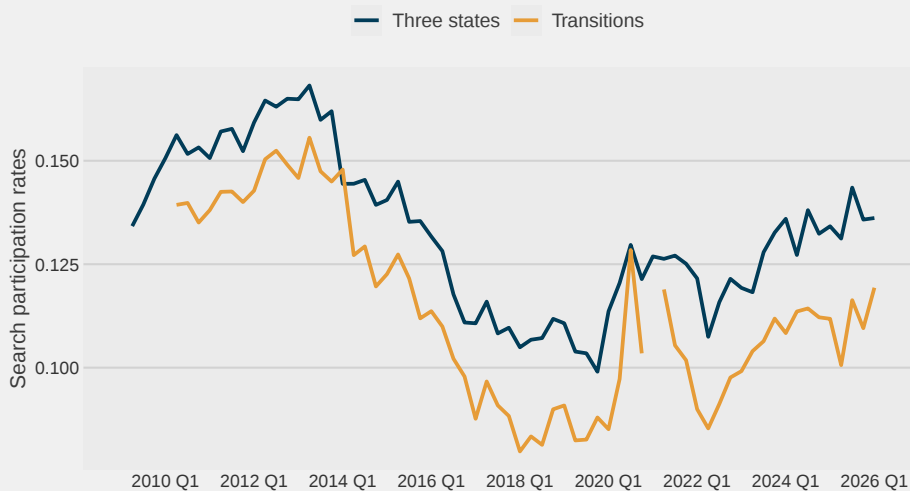
Job finding rates in Hungary



Separation rates in Hungary



Participation rates in Hungary



Macro averages, not every flow

- The estimated job-finding rate averages over the previously unemployed, previously inactive, and job changers.
- Unemployment duration adds an outflow rate from unemployment, but not destinations.
- Full group-level identification needs stronger restrictions on heterogeneous search participation and finding rates.
- In the data, the strongest equal-rate restrictions fail: unemployment outflows are often below the average job-finding rate.

Interpretation

The estimates are best viewed as macro-relevant turnover objects for employment dynamics, not as a fully unrestricted E/U/I transition matrix.

A transparent bridge between theory and public data

- Public cross-sectional data can recover more than the two-state unemployment-duration approach suggests.
- Job tenure is the key additional moment because it observes new employment, including job-to-job moves.
- Inactivity matters both conceptually and quantitatively through search participation.
- The approach is easy to implement, stock-consistent, and suited to countries without published gross flows.

Bottom line: employment turnover can be measured from public data, but the identification boundary should be stated clearly.