WORKSIM
AN ABM MODEL TO STUDY LABOUR MARKETS

Discussion

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Literature on labour market segmentation assumes agents are fully rational

- Requires optimisation algorithms to solve the agents decision problem;
- Some simplifications imposed to find an analytical solution;
- Numerical methods allow for increasingly complex models;
- Recent work:
  - Kettemann, Kramarz and Zweimüller (2017); Fialho (2017); Guglielminotti and Nur (2016); Cahuc, Charlot and Malherbert (2016); Bertron and Garibaldi (2012); Tealdi (2012); Caggese and Cuñat (2008).
Relying on bounded rationality, WorkSim can accommodate a very complex environment

- **Individuals**
  - Heterogeneous workers. Interactions within households;
  - Multiple states: inactive, unemployed, employed without searching or searching on-the-job while employed.
  - Different types of human capital changing over time (general, occupational and job-specific);

- **Firms**
  - Firms with multiple jobs face idiosyncratic demand shocks. Multiple occupations. Jobs with different characteristics (hours worked, amenities, etc.) and requirements of human capital;
  - Incomplete information about workers’ productivity and potential for screening;

- Detailed institutions and features of the labour law
With a more realistic environment, WorkSim opens up new possibilities for policy analysis.

- With multiple jobs, fixed-term contracts can function as buffer when firms face uncertain future demand;

- Model can generate a mix of contract types – changing over time - within the same firm;

- It can also generate a distribution of fixed-term contract durations. Can analyse contracts of very short duration;

- Generates flows between multiple states, endogenous share of fixed-term contracts in new hires and total employment.
Additional complexity also raises questions

- **Identifying essential parameters.** What parameters are crucial? Are there parameters with little role?

- **Ensuring robustness**
  - How sensitive are the simulation results to each parameter?
  - How sensitive are the results to the chosen distributions and stochastic processes when initialising the simulation?

- **Focused narrative.** Are there mechanisms more important than others?

- **Incorporating potentially missing (and relevant) effects**
  - For e.g. firm choosing contract type depending on worker productivity? Complementarity between worker and firm? Wage differential across contracts? Differences in training?
Bridging divides between potentially complementary approaches

- **ABMs of the labour market:**
  - More realistic;
  - Analyse detailed features of institutions and labour law;
  - Investigate several outcomes simultaneously.

- **Analytical models of the labour market:**
  - Disentangle between two or a few mechanisms;
  - Enhance understanding of one precise channel;
  - Provide a narrative for one observed phenomenon.