Social Insurance and Occupational Mobility

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September 20, 2025

Outline

Motivation

- Social insurance provides a cushion for workers.
- Differs across countries, affecting labor market dynamics.
- How can we model this effect?

Research Question

Main Question

How does social insurance effect occpational experimentation?

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Hypothesis

Providing more social insurance allows for riskier occupational choices.

Model

- Build upon Roy (1951) model of occupational choice.
- Add interaction between earnings risk, social insurance, and occupational choice.

Human Capital

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- Innate
    - occupation specific
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- Innate
  - occupation specific
  - discovered through work experience
- General
  - applicable to all occupations
  - will experience occupation-specific shocks to this human capital

Model Environment

Household:

- Lives for S periods
- endowed one unit of time each period, with no leisure value
- workers dislike risk
- rank levels of consumption c according to a utility function $u(c)$

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Labor Market:

- J occupations, $j = 1, ..., J$
- workers can only work in one occupation at a time, but can switch between periods
- receive wage w_j per unit of human capital

Value Functions

Value of staying in occupation j:

$$V_s(\Omega_s, z, \epsilon, j) = \{u(c) + \beta \int W_{s+1}(\Omega_{s+1}, z', \epsilon', j')dF(\epsilon')\},$$
$$s.t.$$
$$c = T(w_j e^{\theta_j} e^z e^\epsilon)$$
$$z' = z + \epsilon$$
$$\Omega_{s+1} = \Omega_s$$

Value Functions, cont.

Value of switching to occupation j':

$$H_s(\Omega_s, \theta_{j'}, z, \epsilon, j') = \{u(c) + \beta \int W_{s+1}(\Omega_{s+1}, z', \epsilon', j') dF(\epsilon')\},$$

$$s.t.$$

$$c = T(w_{j'} e^z e^{\theta'_j} e^{\epsilon'_j} e^{-c(s,\kappa)})$$

$$z' = z + \epsilon'$$

$$\Omega_{s+1} = \{\Omega_s, j', \theta_{j'}\}$$

Equilibrium

$\Psi_{j,s}(\Omega_s, z, \epsilon)$ is the distribution of workers in occupation j at age s with history Ω_s, general human capital z, and shock ϵ. Ψ is defined for all $\Omega_s, z, \epsilon \in \mathbb{R}$

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Mass of newborns:

$$\Psi_{j,0}(\Omega_0, z, \epsilon) = \frac{1}{S} f_j \forall j \in \{1, ..., J\}$$

where f_j is the fraction of newborns with initial occupation specific ability θ_j.

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For $s = 0, ..., S$:

$$\Psi_{j,s+1}(\Omega_{s+1}, z', \epsilon) = \sum_{j'} \Psi_{j',s}(\Omega_s, z, \epsilon) I_{j,s}(j', \omega_s, \epsilon, z) \forall j \in \{1, ..., J\}$$

Equilibrium cont.

Define aggregate mass of efficiency units in occupation j at age s as:

$$N_j = \frac{1}{S}\sum_{s\in S}\int e^{z}e^{\theta_{j'}}e^{\epsilon_{j'}} + \frac{1}{S}\sum_{s\in S}\sum_{j\neq j'}\int e^{-c(s,\kappa)}d\Psi_{j,s}(\Omega_{s-1},z,\epsilon)$$

Equilibrium cont.

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This let's us define the SCE consisting of

1. set of occupation level wages $\{w_j\}_{j=1}^{J}$
2. occupational populations $\{\Psi_j\}_{j=1}^{J}$
3. set of intermediate goods prices $\{p_j\}_{j=1}^{J}$
4. set of occupational labor inputs $\{N_j\}_{j=1}^{J}$
5. occupation-specific decision rules $\{I_{j,s}\}_{j=1,s=0}^{J,S}$
6. value functions $\{V_s\}_{s=0}^{S}$

Equilibrium Conditions

1. Above value functions solve optimization problems
2. Labor inputs N_j are the solution to the intermediate producer optimnization problem
3. Intermediate goods quantities X_j solve the final goods producer's problem
4. Prices p_j equate supply and demand of intermediate goods
5. Wage in occupation j is the marginal product of an efficiency unit in that occupation s.t.

$$w_j = \alpha_j N_j^{\alpha_j - 1} \Pi_{j' \neq j} \{ N_j'^{\alpha_j'} \}$$

6. Labor markets clear at occupational level
7. In occupation j, Ψ_j is the stationary distribution
8. Final goods market clears by Walras' Law

Data

- Describe your dataset
- Number of observations, variables
- Time period, source

Main Results

example-figure.pdf

Table of Results

Variable	Coef.	Std. Error
X	0.45	0.12
Z	-0.23	0.08

Table: Regression results

Conclusion

- Summarize findings
- Contributions
- Future work

References I