Locus of Control and Investment in Training

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1 Motivation

- **Research Question:**
 - Does locus of control influence the participation decision in general and/or specific training?

2 Locus of Control (LoC)

- **Psychological Concept (Rotter, 1966):**
 - Extent to which people think that outcomes of their lives are contingent upon own behavior.

3 Training

- Training (Becker, 1962):
 - Specific training (ST): increases productivity
 - only in the firm providing it.

- And if so, through which channel? \rightarrow Subjective "expected probability of a wage increase".
- Importance of Training:
 - Economy: maintain skilled workforce, improve competitiveness, cope with technological change.
 - Individuals: higher wages, performance, occupational status, probability of promotion.
 - Firm: increased productivity.
- Determinants of Training:
 - Socio-economic/ Firm-specific: educational level, age, gender, working contract, firm size.
 - Personality traits: locus of control.

- -Internals (+): outcomes are due to own actions.
- -Externals (-): outcomes are determined by luck, fate, chance, other people.

| | Items (Scale: (1) "Totally Disagree" to (7) "Totally Agree") | |
|-----|--|---|
| 1 | I decide the way my life is run | + |
| 2 | In comparison to others, I haven't achieved what I deserve | - |
| 3 | What one achieves in life is mainly a question of luck or fate | - |
| 4 | I often make the discovery that others influence my life | - |
| 5 | One has to work hard to achieve success | + |
| 6 | If I ever hit upon difficulties in my life, I doubt my capabilities | - |
| 7 | The possibilities in my life are determined by the social conditions | - |
| 8 | More important than any endeavors, are your own capabilities | + |
| 9 | I have little control over the things that take place in my life | - |
| • [| LOCUS of control = $\theta = \frac{\sum_{int} item_{int} + \sum_{ext} (8 - item_{ext})}{ext}$ | |

inivers,

- General training (GT): increases an individual's productivity to many employers equally.
- Who decides and pays for it?
 - ST: firms and individuals share costs, firms take the decision.
 - Locus of control either does not play a role (or direction ambiguous)
 - GT: individual takes the decision and pays for it!
 - Locus of control plays a role through which channel?

4 HCI – Individual Perspective

• Human Capital Investment Model (Coleman/DeLeire, 2003)

 $y_1(t) / y_2(t)$: high / low income path in period t

GT / NT : stock of human capital: general training (takes s periods) / no training

- p_1^{GT} / p_1^{NT} : subjective probability of receiving high income path conditional on GT / NT
- $\Phi(\Phi' = \varphi)$:standard normal cumulative distribution function
- δ : discount rate

5 Data and Descriptives

• Data & Sample:

- German Socio-economic Panel (SOEP)
- 2000, 2004, 2008 (pooled cross-sections)
- Age: 20 65
- Employed during time of training

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A: Observations by Training & LoC

| | All | External | Internal |
|---------------------|-----------|----------|-----------|
| No Training | $9,\!246$ | 3,388 | $5,\!858$ |
| Training | $2,\!981$ | 901 | $2,\!080$ |
| General Training | $1,\!923$ | 546 | $1,\!377$ |
| Specific Training | $1,\!058$ | 355 | 703 |
| $\overline{\nabla}$ | 19 997 | 1 280 | 7 038 |

Fixpected value of wages:

$$E[y^{GT}(t)] = p_{1}^{GT}y_{1}(t) + (1-p_{1}^{GT})y_{2}(t)$$

$$E[y^{NT}(t)] = p_{1}^{NT}y_{1}(t) + (1-p_{1}^{NT})y_{2}(t)$$
Net present value of future wages:

$$V_{0}^{GT} = \sum_{t=s}^{T} \delta(t) \ E[y^{GT}(t)]$$

$$\rightarrow \text{ Investment in general training: } V_{0}^{GT} > V_{0}^{NT}$$
Assumptions about locus of control in our model:

$$\theta \rightarrow +\infty \Rightarrow p^{GT}(\theta) = 1 \& p^{NT}(\theta) = 0$$

$$\theta \rightarrow -\infty \Rightarrow p^{GT}(\theta) = p^{NT}(\theta) = \overline{p}$$

$$p_{1}^{GT}(\theta) = \Phi(\theta) + (1-\Phi(\theta)) \cdot \overline{p} \qquad \Rightarrow \qquad \frac{\partial p_{1}^{GT}(\theta)}{\partial \theta} = (1-\overline{p})\varphi(\theta) > 0$$

$$p_{1}^{NT}(\theta) = (1-\Phi(\theta)) \cdot \overline{p} \qquad \Rightarrow \qquad \frac{\partial p_{1}^{NT}(\theta)}{\partial \theta} = -\varphi(\theta) \ \overline{p} < 0$$
Effect of locus of control on expected income:

ect of focus of control on expected income. $\partial E[y]$

$$\frac{\partial^{GT}(t)]}{\partial \theta} = \varphi(\theta)(1-\overline{p})(y_1(t)-y_2(t)) > 0 \qquad \frac{\partial E[y^{NT}(t)]}{\partial \theta} = \varphi(\theta)\overline{p}(y_2(t)-y_1(t)) < 0$$

$$\mathbf{V}_{0}^{N\mathrm{T}} = \sum_{t=0}^{\mathrm{T}} \delta(t) \ \mathrm{E}[\mathbf{y}^{N\mathrm{T}}(t)]$$

- 12 months prior to interview date
- Details on a max. of 3 most recent courses
- Type of Training: "To what extent could you use the newly acquired skills if you got a new job in a new company"
 - GT: "For the most part", "Completely"
 - ST: "Not at all", "Only to a limited extend"

| 12,221 | 1,200 | 1,000 |
|--------|-------|-------|
| | | |
| | | |

Expected Probability of Wage Increase: "How likely is it that you personally receive a pay raise above the rate negotiated by the union of staff in general in the next two *years*" (Scale: 0-100)

B: Average Expected Probability of Wage Increase by Training

| | Mean |
|-------------------|-------|
| No Training | 13.99 |
| Training | 19.07 |
| General Training | 21.39 |
| Specific Training | 14.84 |

6 **Empirical Results**

C: Training Participation (Logit, Coefficients)

| | (1) | (2) | (3) |
|------------------|---------------------|------------------|-------------------|
| | Training (GT or ST) | General Training | Specific Training |
| Locus of Control | 0.05^{*} | 0.096*** | -0.043 |
| Observations | 12,227 | 12,227 | 12,227 |

E: Predicted Expected Probability of Wage Increase

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7 Findings

- Internals are more likely to participate in general training, this effect cannot be found for specific training.
 - Consistent with a model where firms decide \rightarrow about specific and individuals about general



training.

- Potential channel: expectations regarding the probability of wage increases.
 - Internal participants have higher wage growth expectations than externals.
 - Internal non-participants have lower expectations than external non-participants.
 - Difference increases with locus of control.

Key References:

- Gary S. Becker (1962): Investment in Human Capital: A Theoretical Analysis, Journal of Political Economy, University of Chicago Press vol. 70, issue 5.
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- Julian B. Rotter (1966): Generalized expectancies for internal versus external control of reinforcement, Psychological Monographs: General and Applied, Vol 80(1), 1966, 1-28.