Training motivation of low-skilled workers

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Aim of the paper

What explains the difference in training intensity between high- and low-skilled workers?

→ Little research on heterogeneity of returns to training across skill levels workers.

Two alternative explanations:

- Low skilled have low *extrinsic* motivation to train (e.g. low wage returns).
- Low skilled have low *intrinsic* motivation to train.

Motivation (1)

Low training participation of low skilled

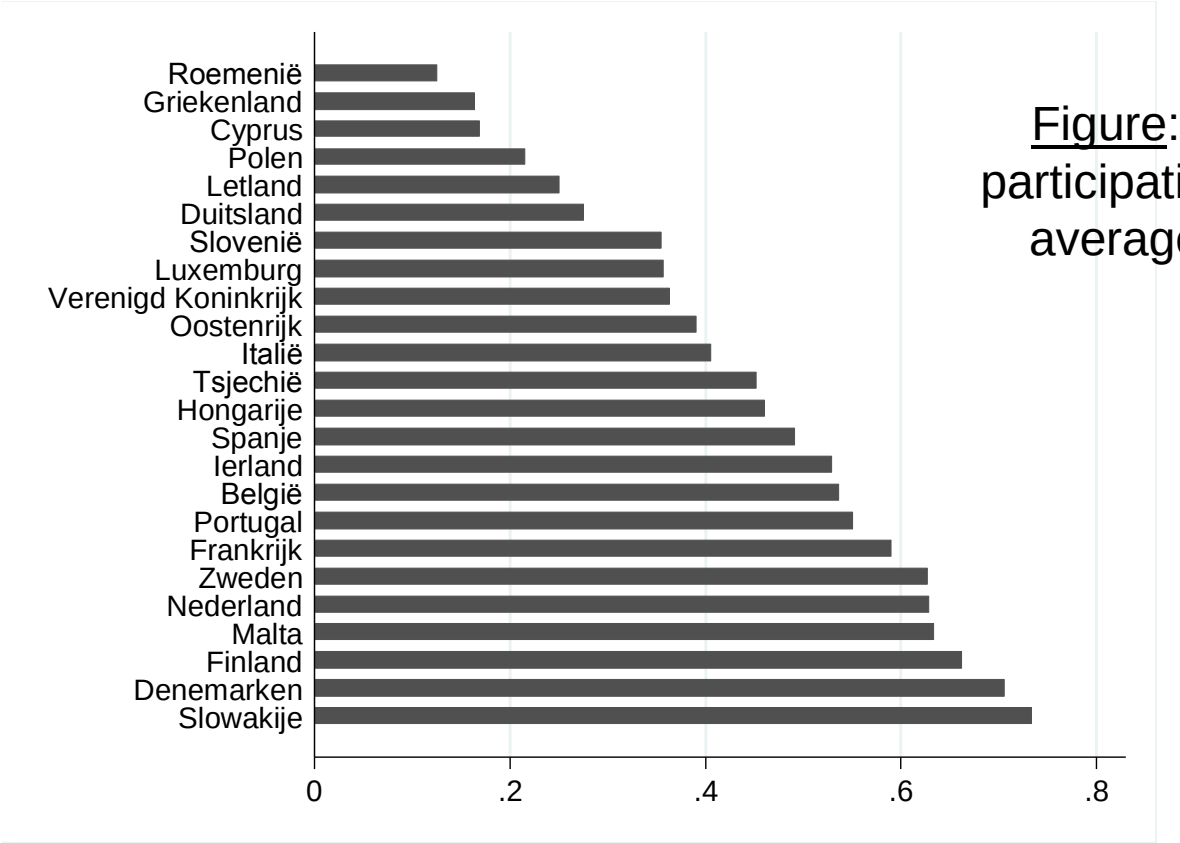

Figure: Ratio of training participation of low-skilled to average-skilled workers

Source: Eurostat(2007)

Motivation (2)

Difference training participation of low and high skilled increasing

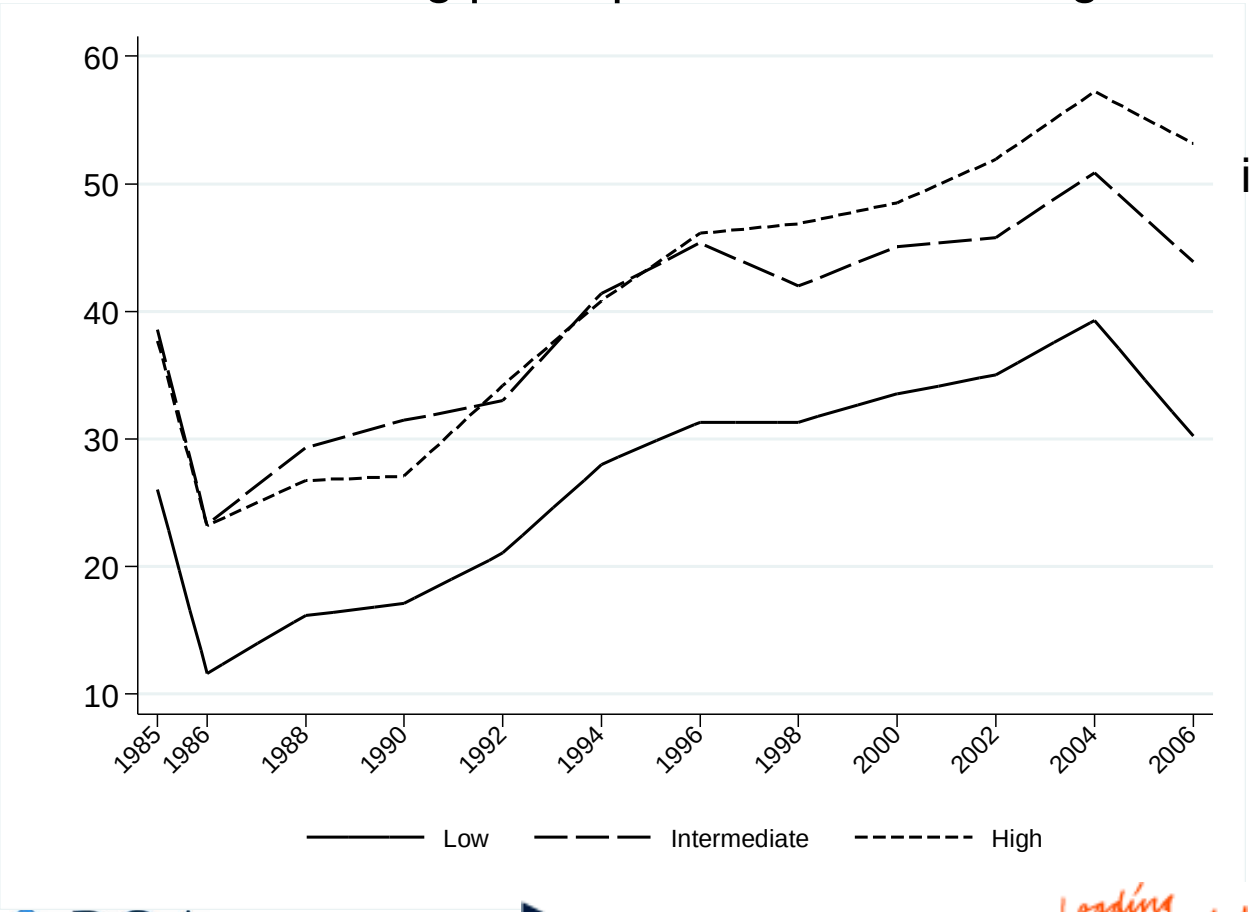

Figure: Training incidence by worker's skill level

Source: OSA Labour Supply Data (1985-2006)

Previous research (1)

Theory

- Extrinsic motivation low skilled: ambiguous relation with training participation (Becker 1962; Cappelli 2002, Polachek & Robst 1998; Acemoglu & Pischke 1999, 2001)

- Intrinsic motivation low skilled: expected to be lower, reducing training participation (Borghans et al., 2003, Heckman et al., 2006, Jacob (2002), Tharenou 2001).

Previous research (2)

Empirical studies

- Training and wage: generally positive relation
  - Less strong for low skilled in DE (Kuckulenz & Zwick 2004)
  - No difference between low and high skilled in US (Lynch 1992)
  - Stronger for low skilled in NL, UK, FR and PT (OECD 1999, Budria & Pereira 2007)
- Training and employability: generally positive relation
  - Upward labour mobility low skilled (Blázquez Cuesta & Salverda 2007, Büchel & Pannenberg 2004, Pavlopoulos & Fouarge 2008)
  - However, stronger for high skilled in other studies (e.g. Pavlopoulos et al. 2009)
- Training and intrinsic motivation: generally positive
  - Hardly any studies with respect to skill differences
  - Low skilled lower intrinsic motivation (Illeris 2005)

Data and approach (1)

Extrinsic motivation

- OSA Labour Supply Panel 1985-2006
- 4,500 individuals in about 2,000 households
- Training = work-related courses in past 2 years
- 3 skills levels:
  - Low (ISCED 0-2)
  - Intermediate (ISCED 3-4)
  - High (ISCED 5-6)

Data and approach (2)

Extrinsic returns to training:

- Job loss model (probability unemployment):
  - Random effects probit model
  - Propensity score matching (Imbens 2000)
- Wage model (log wages):
  - Fixed effects (Pischke 2001)
  - “Pre-programme test” (Heckman & Hotz 1989)

Data and approach (3)

Intrinsic motivation

- ROA Life Long Learning Survey 2004 & 2007
- Web-based surveys among adults in 2,000 Dutch households
- Readiness to take training
  - On skills that are relevant for the job
  - Invest 1 evening per week in this training (for ½ year)
  - Five-points scale: ‘very unlikely’ …‘very likely’
- Reasons why not train (2004 survey):
  - Opportunity cost of training → economic preferences
  - Exam anxiety → personality traits

Data and approach (4)

- DNB Household Survey 2004, 2005 & 2007
- Matched to ROA Life Long Learning Survey

- Information on non-cognitive skills:
  - *Economic preferences*:
    Future orientation
  - *Personality traits*:
    Big Five taxonomy (Goldberg, 1971):
    openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism

Data and approach (5)

- Model: ordered probit for likelihood that one would participate in training
  - Basic model: skills level, gender, age, sector, year
  - Economic preferences:
    - Future orientation
    - Opportunity costs
  - Personality traits:
    - Internal locus of control
    - Exam anxiety
    - Openness
    - Conscientiousness
    - Extraversion
    - Agreeableness'
    - Neuroticism

Results (1)

	Probability of leaving paid employment between *t* and *t*+2 [2]		Hourly wage (in log)	
	Panel probit, RE	Propensity score model [3]	Panel FE model	Panel FE model
Training in past 2 years	-0.018***	-0.028***	0.012*	0.016*
Training * Intermediate skilled	0.000	0.015	0.003	0.002
Training * High skilled	-0.012	0.004	-0.009	-0.018
Intermediate skilled	-0.005		0.003	-0.005
High skilled	-0.010*		0.046***	0.035*
Propensity score		-0.258***		
Pre-programme test				-0.002
Chi-squared	618.561	636.097		
Df	33	4	13617	8200
Loglikelihood	-3972.757	-4429.542	12196.692	8174.004
N	20148	20148	31145	19657

1) Standard errors in parentheses. Additional control variables: gender, age, age squared, hours worked, unpaid overtime work (dummy), paid overtime work (dummy), sector dummies, year dummies. 2) Marginal effects from probit estimates. 3) In the propensity score model, the covariates are only included in the probit model to calculate the propensity that one will engage in training. * p<0.10, ** p<0.05, ***p<0.01.
Source: OSA-Labour Supply Panel.

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Results (2)

- Readiness to take relevant training:
  - Low skills: 2.8
  - Intermediate skills: 3.1
  - High skills: 3.2

- Why not train?

Table 3: Reason why one does not expect to take the training, by skills levels[1)]

	Low	Intermediate	High	Total
Opportunity cost of training:				
"In the evening I'd rather do something else"	5.0	5.1	5.2	5.1
Psychological cost of training:				
"I find it scary to take an exam again"	3.1	2.4	2.1	2.5

1) Average on a 7-points scale ranging from 'disagree completely' to 'agree completely'.

Source: ROA-Life Long Learning Survey.

Results (3)

Ordered probit regression for the likelihood that one would take part to training[1)]				
	Model 1	Model 2	Model 3	Model 4
Intermediate education	0.222***	0.194***	0.149*	0.139
High education	0.315***	0.262***	0.169*	0.129
Economic preferences				
Future orientation[2)]		0.055**	0.074**	0.072**
Opportunity costs			-0.229***	-0.232***
Personality traits				
Internal locus of control[2)]		0.113***	0.167***	0.157***
Exam anxiety			-0.491***	-0.493***
Openness[2)]				0.074**
Conscientiousness[2)]				-0.045
Extraversion[2)]				-0.008
Agreableness[2)]				0.022
Neuroticism[2)]				-0.019
Pseudo-R-squared	0.031	0.034	0.111	0.113
N	2161	2161	1224	1224

1) Answers are measured on a scale ranging from “very unlikely” (1) to “very likely” (5). The table shows regression coefficients and the standard errors in parentheses. Models 3 and 4 could only be estimated on the 2004 wave of the ROA-Life Long Learning Survey. Model 5 is similar to Model 1, but it is only estimated for 2004. Additional control variables: gender, age, age squared, sector of industry, dummy for 2007 wave (model 1 and 2 only), dummy variables and 4 threshold points. 2) Factor scores. * p<0.10, ** p<0.05, ***p<0.01.
Source: ROA-Life Long Learning Survey & DNB Survey.

Conclusion (1)

- What explains the difference in training intensity between high- and low-skilled workers?
  - Extrinsic motivation to train does not differ by skills levels: same returns to training
  - Intrinsic motivation does differ
- What explains differences in intrinsic motivation?
  - Economic preferences (future orientation and opportunity costs)
  - Personality: Openness and exam anxiety

Conclusion (2)

Policy implications

- Information on equal returns to training
- Personality traits more difficult to affect
  - Exam anxiety can be targeted during initial education spells of low-skilled
  - Role of HRM can also be thought of

Thank you