

Transferability of Skills after Apprenticeship Training

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Motivation

- What is the earnings potential of different occupations after a dual apprenticeship for individuals?
- applicability of skills at other employers
- attractiveness to choose certain occupations

Skills during apprenticeship

GENERAL

general skills are the main content of apprenticeship training

▶ a change of employer is possible without wage reduction

SPECIFIC

firm-specific skills are the main content of apprenticeship training

▶ a change of employer comes along with a wage reduction

crucial assumption: no selection between changers and stayers

Skill-weights approach on firm specific human capital

- theory on skill-weights: combination of skills required within one firm (bundles)
 - ▶ firm-specific skills result out of these bundles (Lazear, 2004)
- empirical approach to test Lazear's hypotheses for employer financed training
 - ▶ calculation of different measures of skills weights (Backes-Gellner and Mure, 2005)
- **here**: no skill-weights, but observing wages of stayers and changers after apprenticeship training

Individual based analyses that compare wages of stayers and changers

- Acemoglu/Pischke 1998: compare wages of stayers and 'military' changers
- Dustmann et al. 1997, Euwals/Winkelmann 2001/2004: entry wages at first skilled job (independent of occupation)
 - ▶ **controlling for selectivity?**
- NEW here:
reduce heterogeneity and selection of individuals and firms

We reduce heterogeneity and selection by

- a sample of job entrants max. 30 days after apprenticeship
- analyzing individual wage deviations from occupation-means to avoid systematic biases
- looking at wages before and after apprenticeship training and the markup
- comparing wage differences of both groups at entry and 365 days later
- differentiating between occupation groups with different skill requirements

Variables

- occupation groups:
 - trading
 - metal-working
 - electronics, IT & chemicals
 - crafts & construction

interacted with dummy for employer change yes/no

- individual (deviations from occupation means):
age, sex, nationality, unemployment, time between
- firm: size (deviations from occupation means), sector
- year dummies

OLS-regression for different output variables

$$Y_i = \alpha + \beta_1 \text{TRADING}_i + \beta_2 \text{METAL}_i + \beta_3 \text{ELECTRO}_i + \beta_4 \text{CRAFTS}_i + \gamma \mathbf{X}_i + \varepsilon_i$$

$$Y_i = \begin{cases} 1) & \text{wage at end of apprenticeship} \\ 2) & \text{wage at beginning of first skilled job} \\ 3) & \text{markup (= wage skilled - wage apprentice)} \end{cases}$$

- wages in deviations from occupation means
- TRADING, METAL, ELECTRO, CRAFTS are interacted with employer change
- \mathbf{X}_i : individual and employer characteristics

Data

- IABS04 (1993-2003), employee register data
- repeated cross-sections, West Germany, 33,378 observations
- age 16-25
- sectors: water/energy, manufacturing industry, building trade, trade, traffic, finance, gastronomy, renting, services
- time between apprenticeship and first job max. 30 days
 - ▶ reduces changing rate from 40 to 19%

Findings I: wage differences for changers by occupation

	apprenticeship	first job	markup
TRADING	-0.018***	0.039***	0.021***
METAL-WORKING	-0.007	-0.000	-0.039***
ELECTRO, IT, CHEMICALS	-0.010	-0.005	-0.043***
CRAFTS, CONSTRUCTION	-0.009	0.003	-0.030***
AGE	0.019***	0.013***	-0.006***
SEX	-0.024***	-0.022***	0.002
NATIONALITY	0.016**	0.017***	0.000
UNEMPLOYMENT	-	-0.000	0.041***
TIME BETWEEN	-	-0.004***	0.001
FIRM SIZE APP. DUMMIES	yes	-	yes
FIRM SIZE EMP. DUMMIES	-	yes	yes
FIRM SECTOR APP. DUMMIES	yes	-	yes
FIRM SECTOR EMP. DUMMIES	-	yes	yes
CONSTANT	0.039***	0.104***	0.017
R^2	0.095	0.125	0.013

Findings II: wage differences for changers by occupation

	entry	365 days
TRADING	0.034***	0.050***
METAL-WORKING	0.010	0.017*
ELECTRO, IT, CHEMICALS	0.014	0.027***
CRAFTS, CONSTRUCTION	-0.007	0.008
AGE	0.015***	0.017***
SEX	-0.028***	-0.029***
NATIONALITY	0.014***	0.019***
UNEMPLOYMENT	-0.026**	-0.013
TIME BETWEEN	-0.002***	-0.001***
FIRM SIZE EMP. DUMMIES	yes	yes
FIRM SECTOR EMP. DUMMIES	yes	yes
CONSTANT	0.109***	0.055***
N	18,449	18,449
R ²	0.146	0.165

Summary I: transferability of skills from apprenticeship training differs

- Trading occupations
 - had a bad match during apprenticeship (quality of match)
 - firms employing changers seem to pay lower wages (quality of firm)
 - match improves through change of employer (and improves over time)
 - positive markup for changers
 - ▶ good transferability of skills
- less problems to change employer, more attractive

Summary II: transferability of skills from apprenticeship training differs

- Metal-working, Elect., IT & chemicals, Crafts & construction
 - no differences between wages during apprenticeship and at first skilled job
 - significant negative markup difference for changers
 - ▶ transferability of skills low, firm-specific bundles
 - ▶ insecurity discount of the new employer for changers
 - wage differences decline in the long run
 - ▶ new employers learn about their employees and/or train them
- more problems to change employer, less attractive