



1975-2015

Job Design and Skills Development in the Workplace

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Skills, Tasks, and Job Design

- Skills are embodied in people and deployed in the execution of tasks
- Difficult tasks put strain on skills
- Firm have a degree of choice on how to bundle tasks into jobs



Jobs and Tasks: Naïve Characterization

- Simple Jobs: simple tasks, routinely performed, following standard scripts, little autonomy/control
- Complex Jobs: complex tasks, non-routine operations, problem solving, autonomy in the way tasks are (are to be) executed and problems are solved



Work and Learning

- On-the-job learning and learning curve
- Simple Job Design: strains workers on speed → learning by repetition (after initial induction)
- Complex Job Design: strain on workers' skills → complexity nudges job holders out of their professional comfort zone inducing on-the-job learning



Implications

- Skills utilization may induce skills formation
- Learning in organizations: workplace support
- Skills utilization and skills formation → Human Capital becomes an intangible asset (Resource Based View RBV: a source of competitive advantage)



Data and Measures: ESJS

- Cross section, 48.000 workers in EU
- Retrospective information about:
 - perceived changes in job complexity
 - Scale compiled from 3 items (variety tasks, difficulty tasks, need to learn new things), 0 decreased a lot, 10 increased a lot.
 - perceived changes in skills
 - my skills: decreased a lot (0), increased a lot (10)



ESJS: skills development

- Corr (Δ job complexity, Δ skills)=0.42
- Positive skills development through:
 - Training 64.6%
 - Self-learning, trial and error 71%
 - Learning from supervisors and coworkers 76%
- Substantial amount of on-the-job learning



Selling Points

- Holistic measure of skills development
 - Self-assessment/ self-reported
- Unusually rich battery of regressors:
 - attitude towards learning
 - workplace change (new products, processes)
 - retrospective information on career and initial mismatch status
 - reasons for accepting the current job.



Empirical Model

$$\Delta S_i = \beta_0 + \beta_1 \Delta J C_i + \beta_2 \Delta W P_i + \beta_3 P C_i + \beta_4 X_i + \varepsilon_i$$

- $\Delta J C$: Job Complexity
- $\Delta W P$: Workplace Characteristics
- $P C$: Personal Characteristics (gender, age, tenure, hours, contract, hh-characteristics, occupation)
- X other controls (firm size, industry, country)

	Degree of skill development	
	model 1	model 2
change in job complexity	0.400***	0.371***
	[0.016]	[0.015]
index of workplace dynamism	0.126**	0.0969**
	[0.035]	[0.034]
Enjoy Learning for its own sake	0.0641***	0.0745***
	[0.007]	[0.007]
No training past year	-0.292***	-0.260***
	[0.035]	[0.031]
Factors influencing decision to accept the job		
Job Security	0.00848	0.0141**
	[0.006]	[0.005]
Career related reasons	0.0224**	0.0139**
	[0.006]	[0.005]
skills related reasons	0.0741***	0.0673***
	[0.006]	[0.005]
work-life balance	-0.00627	-0.0000852
	[0.005]	[0.005]
Tenure with current employer (log)	0.170***	0.132***
	[0.024]	[0.022]
Mismatch Beginning current job (overskilled, reference)		
Matched	-	0.429***
	-	[0.040]
Underskilled	-	0.774***
	-	[0.063]
Career (No changes, my role the same, reference)		
I have been promoted to a higher level position	-	0.197***
	-	[0.020]
I moved to a different unit/department	-	0.0108
	-	[0.033]
I have not been promoted or moved department but the nature of my tasks and responsibilities have changed	-	-0.042
	-	[0.031]
I now have a lower level position than when I started	-	-0.548***
	-	[0.105]



Robustness and Other Checks

- Career: promotion → skills development, demotion → skills deterioration.
- Initial mismatch: overskilled slowest skills development
- Tenure: the coeff. on change in job complex does not change in subsample short/long tenure. The effect of tenure is strongest in the first 5 years of tenure



Robustness and Other Checks

- Occupations and Countries: the coeff. on change in job complexity remains stable in regressions by occupation and country.
- Attitudes toward learning: the coeff on change in job complexity does not differ in the two subsamples with high and low attitude toward learning.



Conclusions

- Skills turn into productivity when utilized and the degree of skills utilization depends on job design
- Increases in job complexity are positively associated with skills development
- A large part of the skills development takes place on-the-job through self learning and support from colleagues



Δ Workplace \longrightarrow Δ job complex \longrightarrow Δ Skills

First Stage: Coeff on Δ workplace 1.05 (0.05)

First Stage F-statistic =454.6

Second Stage: IV

coeff. on Δ job complex 0.46 (0.03)



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