

Task Prices, Skills Selection and Wage Inequality

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What the paper does

- Cross-occupations changes in employment and wages between 1984 and 2010 are hard to reconcile with simple demand-supply explanations.
 - Manufacturing Jobs account for a lower share of employment in 2010 than in 1984.
 - Their wages did not fall that much, though.
- The paper provides a clever explanation
 - Wage changes within an occupation reflect changes in returns to tasks and skill investments
 - If task prices go up, new entrants will enter the occupation
 - Less skilled than incumbents, watering down observed wage increase.
 - A Roy (1956) selection model formalizes this
- Test the idea using longitudinal data from German Social Security records on employment, wages and occupations.

What the paper does (ii)

TWO ASSUMPTIONS:

1. Jobs are bundles of two components:
 - Price return to tasks
 - Investment on the job
2. Partial equilibrium: returns to tasks are exogenous (i.e., unaffected by the number of workers selecting into the task).
 - On-the-job skill acquisition captured by unrestricted dummies of origin and destination occupations, interacted with covariates.
 - Age
 - Task prices identified through a linear combination of origin and destination occupations.
 - Regressions of wage changes on (a) and (b) identify evolution of the Price of tasks and skill investments.

What the paper finds

- Increased demand for certain **occupations**
 - Increase in prices and employment of managers and professionals,
 - Fall in the demand of production-related **occupations**
- Obscured by selection effects:
 - New entrants attracted to growing occupations are less skilled than incumbents, and their wages reflect that.
- Skill accumulation at the median explains most of increase at the lower tail. Tasks prices at the top

Comment 1: Where are the tasks?

- Paper deals with occupations, literature suggests are good proxies for tasks.
 - But we worry about tasks (title)
- Interesting to see so much heterogeneity in wage coefficients for occupational transitions (next Table)
 - Within the model, these are skill investments
- Possible interpretation is that some tasks in origin occupations are portable to destination occupations, others are not.
- BUT Why not has the paper not focused on tasks, then?
 - Many things change when you change across occupations (skills, but also amenities) -> focus on the variable of interest.
 - Come back to this later.
 - Polarization is about computers substituting tasks.
 - Occupations may mean different things over 26 years.

Table 3: Estimated skill accumulation coefficients

Previous sector	Current sector	Age group		
		[25, 34]	[35, 44]	[45, 54]
Mgr-Prof-Tech	Mgr-Prof-Tech	0.046	0.013	0.000
	Sales-Office	0.140	0.012	-0.033
	Prod-Op-Crafts	0.020	-0.048	-0.068
	Srvc-Care	-0.071	-0.124	-0.016
Sales-Office	Mgr-Prof-Tech	0.218	0.063	0.024
	Sales-Office	0.043	0.015	0.000
	Prod-Op-Crafts	0.125	0.042	-0.025
	Srvc-Care	-0.014	-0.118	-0.074
Prod-Op-Crafts	Mgr-Prof-Tech	0.203	0.115	0.069
	Sales-Office	0.087	0.058	0.007
	Prod-Op-Crafts	0.019	0.008	-0.007
	Srvc-Care	-0.072	-0.051	-0.019
Srvc-Care	Mgr-Prof-Tech	0.275	0.182	0.131
	Sales-Office	0.249	0.138	0.055
	Prod-Op-Crafts	0.299	0.220	0.123
	Srvc-Care	0.019	0.005	-0.011

Source: SIAB data, own calculations. The table shows the estimated $\hat{\gamma}_{k',k,a}$ from Equation (8), i.e., the average relative skill accumulation for workers in age group a who move from sector k' to sector k . For switchers, the effect captures average idiosyncratic shocks, too, see Section 2.2. Estimation method: **Felix, please fix this text up.**

Legend: Mgr-Prof-Tech: managers, professionals, and technicians; Sales-Office: sales and office; Prod-Op-Crafts: production, operators, and craftsmen; Srvc-Care: services and care.

2: Jobs as bundles of tasks and skills?

- Paper relies on switchers, who sort according to wages, according to the model.
 - Important for identification, as changes in wages reflect changes in skills –price tasks.
- What if jobs were bundles of monetary and non-monetary characteristics?
 - Appendix 1 considers the case (page 91): estimates of the skill accumulation are “a combination of the true skill accumulation parameter (...) **minus the non-pecuniary costs of changing tasks**” (bold is mine).
 - Important, as skill accumulation parameters play a key role in accounting for increase in inequality.
- Voluntary job changers (over-represented in the paper) trade-off wages for occupation-specific amenities (Rosen 1974)
 - Their wage growth measures not only the impact of tasks and investments, but also reveal preferences for amenities on the job.
 - Evidence in other countries in Lavetti for Brazil (2018), Bonhomme and Jolivet (JAE 2009). Card, Cardoso, Kline (JOLE 2018) sketch models where idiosyncratic components entering utility of the worker important to understand key features in Portuguese labor markets –rent sharing, cross-firm variation in wages, etc.
 - Germany 1984-2001: GSOEP evidence on trade-offs between amenities and wages (y.h.s, next Table)
- Which takes me back to comment 1, interactions between occupations of origin and destination capture factors above and beyond skills.

Table 2. Average Wage Changes by Change of Disamenities.

<i>Disamenity</i>	<i>Disamenity Worsens in Destination Job</i>	<i>Disamenity Stays the Same</i>	<i>Disamenity Improves in Destination Job</i>	<i>T-Test (1)–(2)</i>	<i>T-Test (2)–(3)</i>
	(1)	(2)	(3)		
<i>Workload</i>					
1. Mean	.139	.079	.056	2.71	1.21
Standard Deviation	(.24)	(.22)	(.241)		
Number of Observations	158	316	269		
<i>Hours Regulation/Working Schedule</i>					
2. Mean	.126	.061	.088	2.62	-1.44
Standard Deviation	(.25)	(.22)	(.246)		
Number of Observations	120	297	326		
<i>Mismatch between Worker's Skills and Knowledge Required in the Job</i>					
3. Mean	.125	.055	.099	2.82	-2.37
Standard Deviation	(.256)	(.22)	(.245)		
Number of Observations	117	325	301		
<i>Job Insecurity</i>					
4. Mean	.13	.074	.091	1.45	-.93
Standard Deviation	(.245)	(.249)	(.22)		
Number of Observations	46	417	280		

Notes: Sample size = 743 observations on 653 individuals. Hourly wage is defined as net monthly income divided by contracted hours, and is not corrected for overtime. Job changes in which the destination job had agreed monthly hours below 15 hours or above 60 are excluded. Job changes in which the final wage was more than 2.71 times or less than 0.36 times the previous wage are also excluded. Each row in the fourth column shows the result of a T-test of the equal mean log-wage increase among changers who increased disamenities and the mean log wage changes of workers whose consumption of disamenities was unchanged. Variances are assumed to be known and equal across groups. The fifth column presents a test of equal average wage increases among workers for whom

Source. Villanueva (2007) "Estimating Compensating Wage Differentials Using Voluntary Job Changes, Industrial Labor Relations Review. GSOEP data 1984-2001

Miscellaneous comments

1. Recent explanations of wage inequality in Germany convincingly argue that firms are important
 - High vs low wage firms, individuals switching to high wage firms experiencing wage increases (Card et al, cited in the paper).
 - Erosion of collective contracts (Dustman et al, cited in the paper)
 - How does the story in this paper complement/challenge existing ones?
2. (More technical) Tasks and skills identified through wage growth models
 - Implicit individual-time fixed effects.
 - But second part of the paper talks about cross-sectional wage inequality (presumably individual fixed effects should be somewhere).
3. Clarify if results come from instrumenting with Arellano Bond.
4. Prices of tasks are estimated.
General equilibrium?

Conclusions

- Interesting, comprehensive work!
1. Should the focus be on occupations or on tasks?
 - Polarization is about tasks
 2. Are jobs just bundles of task prices and skills?
 - If not, unclear that wage changes across occupations just measure those elements.
 3. Connection (or not) with other views of the increase in wage inequality in Germany.