

Anna Katharina Pikos  
Leibniz Universität Hannover  
pikos@aoek.uni-hannover.de

## Motivation

- understanding of determinants of mental health problems is limited
- sickness leaves due to mental health problems and their length rose by around 50% since 2005 (Badura, 2012)
- 41% of early retirement due to mental health problems (Lohmann, 2012).

## Literature

- protective role of education for physical health and health behavior (Lleras-Muney, 2005, Culter and Lleras-Muney, 2010, Kempter et al., 2011)
- no protective effect for general mental health (Kamhöfer et al., 2015)
- analytical framework for work-related mental health problems: Job Demands and Resources Model (Demerouti et al. 2001)  
**job demands > job resources ⇒ mental health problems**  
higher education: job demands ↑ but also job resources ↑ ⇒ health?

## Data

2012 BIBB/BAuA-Survey on the Working Population on Qualification and Working Conditions

- work-related mental health (emotional exhaustion, emotional strain)  
“Please state your (frequent) health complaints during or after work during the last 12 months.”  
“To which degree do you feel emotionally strained at work (often, sometimes, rarely, never)?”
- job demands and resources, sociodemographic and job characteristics

Job demands	Job resources
reaching the limits of one's capacity	to plan and schedule own work
facing too high demands on skills or capacity	to influence own workload
no timely information about the future	to perform tasks independently
not receiving all information necessary for correct work	to decide when to break
performing different tasks simultaneously	good collaboration
working fast	receiving help and support from colleagues
interruptions during work	receiving help and support from supervisor
deadline/performance pressure	feeling as a part of a community at work
even small mistakes can entail large financial losses	
minimum performance	
tiny details in the work process are predetermined	
small steps have to be repeated	

## Methodology

$$Y_i = Educ_i\beta_1 + X_i\beta + u_i \quad (1)$$

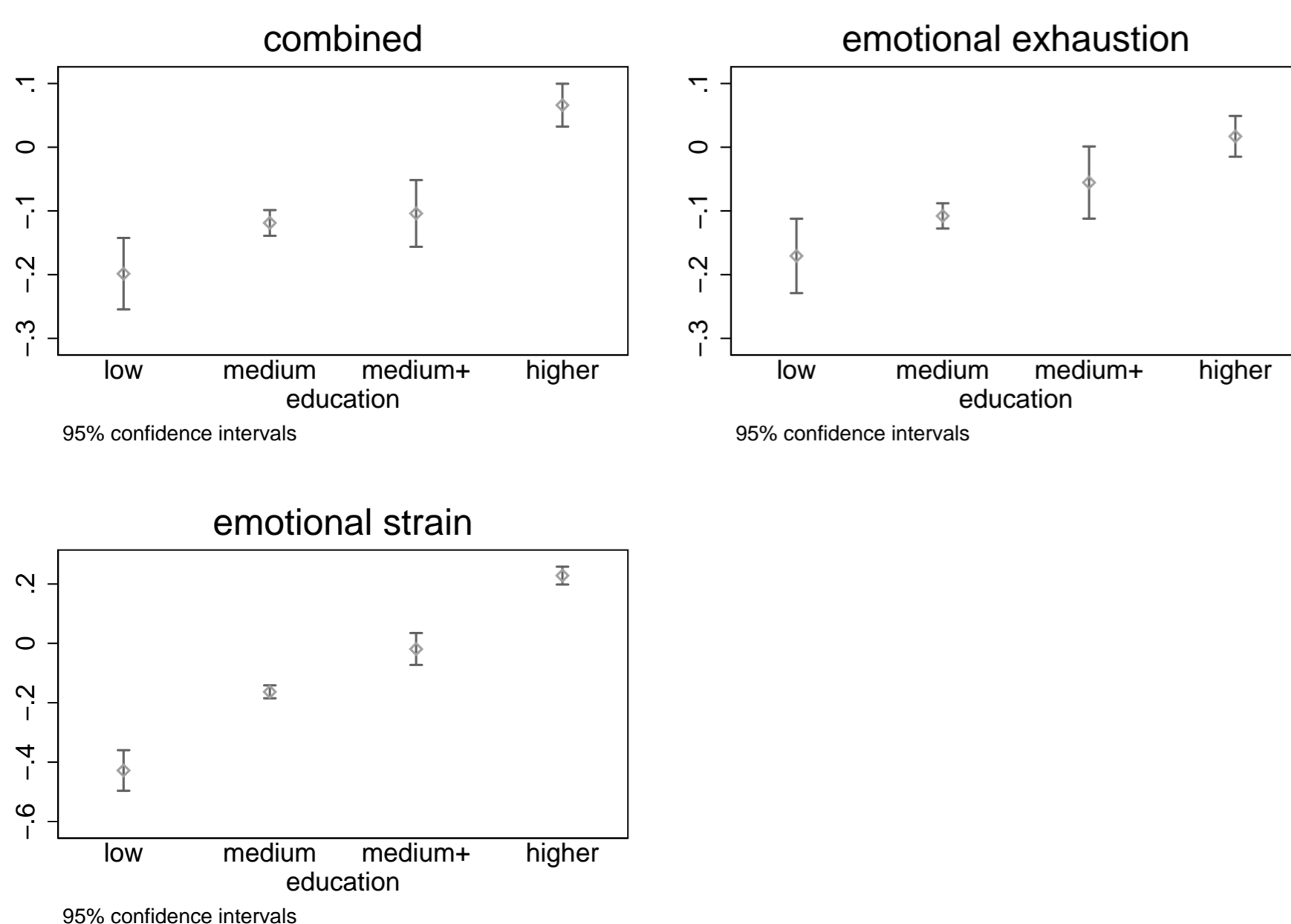
where

- $Y_i$  work-related health outcome of individual  $i$
- $Educ_i$  higher education (endogenous)
- $X_i$  is a vector of control variables (gender, age)
- $u_i$  error term

instrument: parental education/occupational prestige (SIOPS, EGP)

- relevance ✓
- exclusion restriction
  - higher income/status related to better physical health (mental health not sure)
  - higher educated parents: worse mental health (avoidance, coping: downward bias)
  - underlying character trait driving parental  $Educ_i$  and  $Y_i$  passed on to children

## Descriptives



## Main Results

### 1 work-related mental health

	OLS			first stage	second stages		
	combined	exhaustion	strain		combined	exhaustion	strain
higher education	0.357*** (0.022)	0.127*** (0.023)	0.395*** (0.023)		0.537*** (0.086)	0.196** (0.083)	0.592*** (0.088)
gender	-0.241*** (0.021)	-0.192*** (0.020)	-0.207*** (0.021)	-0.002 (0.008)	-0.240*** (0.021)	-0.192*** (0.020)	-0.205*** (0.021)
age	0.007*** (0.001)	0.006*** (0.001)	0.006*** (0.001)	0.002*** (0.000)	0.007*** (0.001)	0.006*** (0.001)	0.006*** (0.001)
parental education				0.286*** (0.012)			
constant	-0.261*** (0.044)	-0.182*** (0.041)	-0.239*** (0.046)	0.076*** (0.018)	-0.292*** (0.046)	-0.194*** (0.044)	-0.272*** (0.049)

Standardized dependent variable given in column header. Combined is a measure for the presence of exhaustion and/or strain. First stage dependent variable: higher education (binary). Parental education: higher education (binary for SIOPS classification larger than 50). Number of observations: 13727. First stage F-statistic: 211. Standard errors in parentheses. Significance levels \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Data sources: BIBB/ BAuA. Own calculations.

### 2 job satisfaction

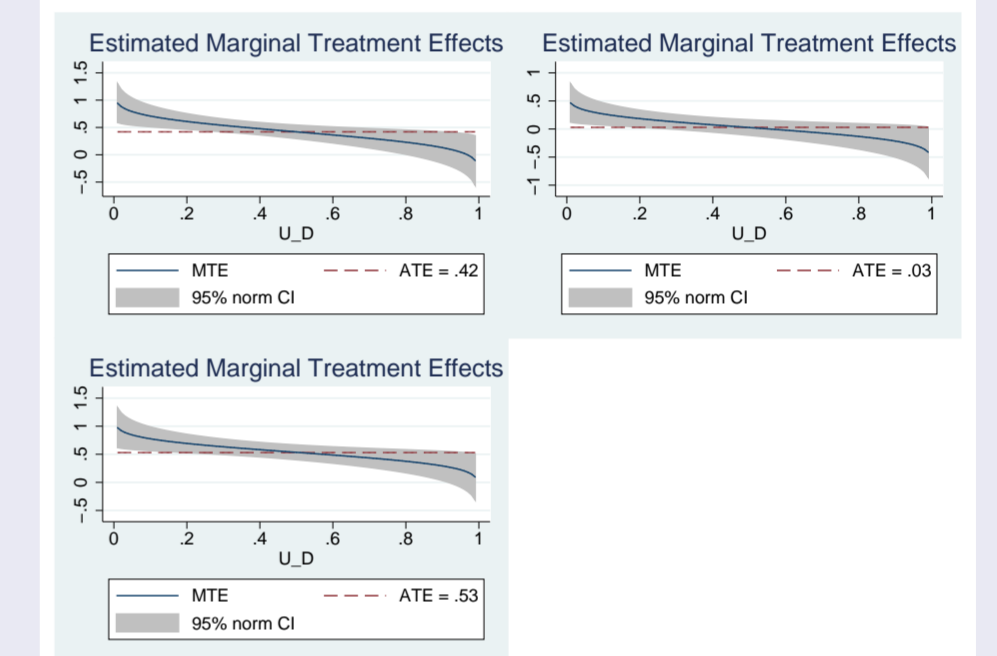
- higher job satisfaction, satisfaction with training, physical conditions, income and tasks
- lower satisfaction with work equipment
- no effect for satisfaction with skills, working atmosphere, hours, career, supervisor

## Robustness & heterogeneity

### Robustness

- constructed years of education
- parental occupational prestige (SIOPS, EGP; binary, continuous)
- father's education sample (mother's: lower n)
- binary outcomes
- general mental health outcomes: largely insignificant

### Marginal Treatment Effects continuous SIOPS measure



## Channels

- job demands ↑  
deadline pressure, capacity limit, simultaneity, interruptions, overstrain, multitasking, missing information, working hours
- job resources ↑  
autonomy (schedule work, influence work load, decide when to break), community feeling, support, independence
- ambiguous factors ↑  
challenges (get familiar, improve methods, demanded unknown things), supervisor
- perceived stress from job demands ↑  
deadline pressure, simultaneity (missing information, lack of autonomy, lack of collaboration)

## Compensation

	wage	layoff	balance	dream	atypical	night	shift	weekend	standby
higher educ.	10.754*** (0.709)	0.071*** (0.024)	0.018 (0.044)	0.131*** (0.036)	0.093** (0.041)	-0.307*** (0.034)	-0.262*** (0.032)	-0.085** (0.042)	0.041 (0.035)
gender	3.204*** (0.159)	-0.001 (0.005)	-0.044*** (0.011)	0.031*** (0.009)	-0.015* (0.008)	0.069*** (0.009)	0.060*** (0.008)	0.153*** (0.010)	0.090*** (0.008)
age	0.159*** (0.007)	-0.001*** (0.000)	0.000 (0.001)	0.001* (0.000)	-0.007*** (0.000)	-0.000 (0.000)	-0.001 (0.000)	-0.002*** (0.000)	-0.001 (0.000)
constant	6.479*** (0.335)	0.068*** (0.011)	0.617*** (0.025)	0.714*** (0.021)	0.406*** (0.022)	0.247*** (0.021)	0.221*** (0.019)	0.676*** (0.023)	0.141*** (0.019)
N	13708	13585	13675	13430	12405	13693	13718	13724	13710

Binary dependent variable given in column header (except wage). Wage: hourly wage, layoff: risk of being laid off soon, balance: successful work-life balance, dream: working in one's dream job, atypical: short-term or temporary contract, night/shift/weekend/standby: regularly occurring. Standard errors in parentheses. First stage dependent variable: higher education (binary) instrumented with parental education (binary for SIOPS classification larger than 50). First stage coefficient: 0.286, F-statistic around 200. Standard errors in parentheses. Significance levels \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Data sources: BIBB/ BAuA. Own calculations.

## Conclusion

- contrast to literature on general mental health but different channels: “health literacy” vs. “job environment”
- education determines which jobs (and job environments) can be accessed  
⇒ job demands and resources, stress perception  
⇒ work-related mental health
- monetary and non-monetary (timing of work, satisfaction) compensation but lower job security
- limitations
  - unobserved personality characteristics in parents and children (exclusion restriction)
  - work-related mental health: survival bias