WZB

Wissenschaftszentrum Berlin
für Sozialforschung

Technequality

Understanding the relation between technological innovations and social inequality

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Deliverable 3.6: Analyzing determinants of participation in adult education

Training opportunities of less-skilled adults in international comparison

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Background

- Automation technologies will continue to reshape the demand for labor and skills (see TECHNEQUALITY forecasting scenarios)
- *Imperative* for workers to update their skills to adapt to changing nature of work

⇒ **Increasing relevance of training beyond initial education**

⇒ **Access to adult training is unequally distributed:** Workers who are forecast to experience biggest changes in required skillsets are less likely to participate

- **Reasons for training inequalities not well understood**: Worker characteristics (i.e., education, skills, motivation) vs. workplaces (i.e., tasks, work hours, industry sector)? Country context?

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Background

- Focus on the training disadvantage of less-educated workers and the role of skills vs. job allocation
- International comparison to account for country differences
- Focus on job-related non-formal training as the predominant form of adult education and training

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Research questions

1. Why are less-educated workers less likely to participate in training: Is it due to their individual skills and motivation or is it because of the jobs and workplaces they inhabit?

2. To what extent do cross-country differences in skills and job allocation contribute to country differences in less-educated workers' training disadvantage?

3. Do educational and labor market institutions moderate the disadvantage of less-educated workers by generating country differences in skills and job allocation?

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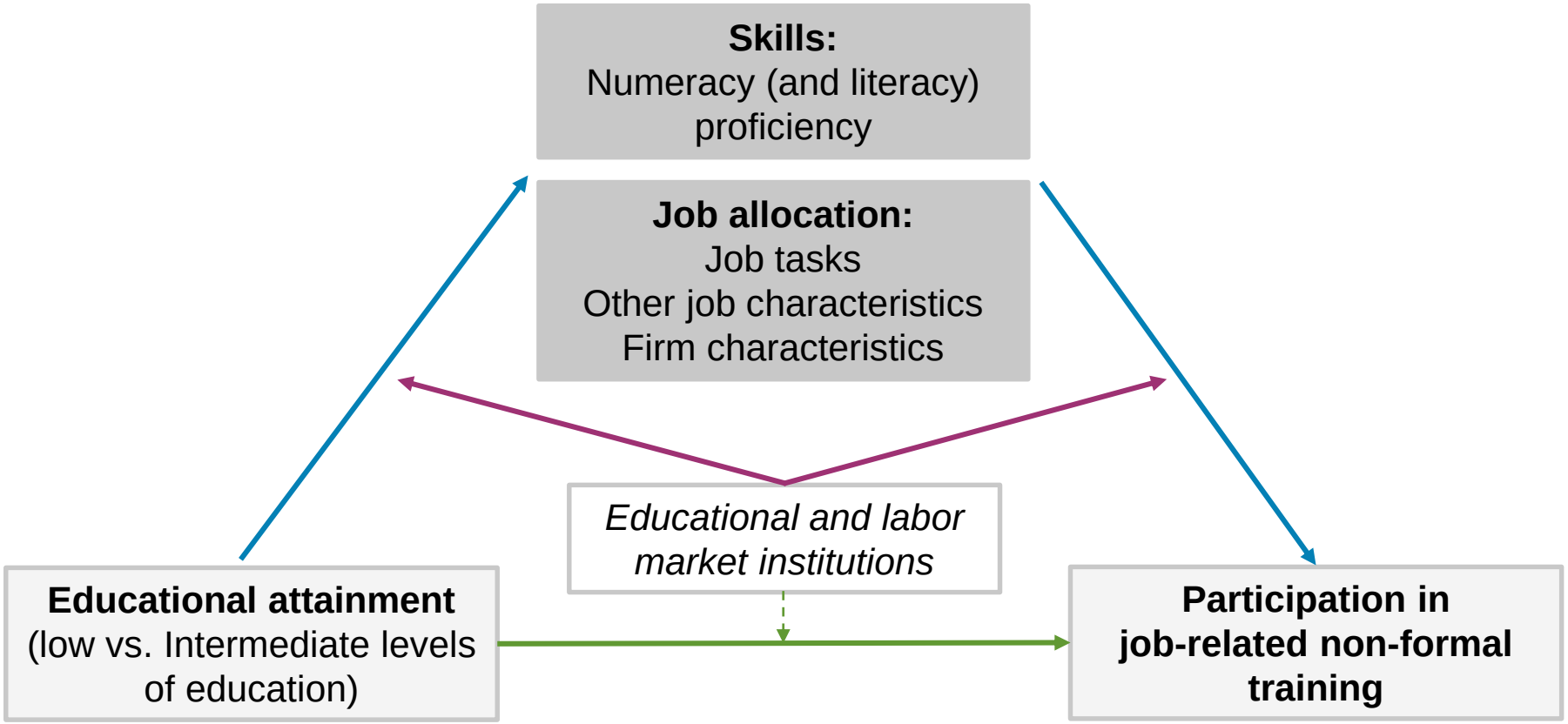
Stylized theoretical model on the role of skills vs. job allocation



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Data

- PIAAC (rounds 1 and 2)

- **Sample restrictions:**
  - aged 25 to 54
  - in dependent employment
  - holding max. upper secondary degree (ISCED 3-4)

➢ **38.320 individuals nested within 27 countries**

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Data

- **Dependent variable:** Participation in job-related non-formal training (NFT) within 12 months prior to interview

- **Main predictor:** Being less-educated (i.e., workers who have not completed upper secondary education) → ISCED 0-2 vs. ISCED 3-4

⇒ **Training disadvantage** of less-educated workers as *difference in participation rates* in job-related NFT between less- and intermediate-educated workers

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Overview of subsets of individual-level predictors

Job allocation	
Job tasks	Factor of abstract tasks (based on five items) Factor of routine tasks (based on four items) Single-item indicator for manual tasks Single-item indicator for manual accuracy tasks
Job characteristics	Part-time employment (yes/no) Firm tenure in years Respondent's occupational status (ISEI) Computer use at work (yes/no)
Firm characteristics	Firm size (five categories) Public (vs. private) firm ownership Economic sectors (eight ISIC groups)
Worker characteristics	
Workers' skills	Numeracy (and literacy) proficiency
Workers' motivation to learn	Factor of motivation to learn (based on four items)
Socio-demographics (control)	Gender, age, household status, household size, and foreign-birth/foreign-language status

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Methods

Country-specific linear probability models of job-related NFT training

- Only including education indicator

  ⇒ *Unadjusted training disadvantage*

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- Additionally including all six predictor sets as covariates

  ⇒ *Fully adjusted training disadvantage*

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Methods

Country-specific linear probability models of job-related NFT training

- Only including education indicator
  - ⇒ *Unadjusted training disadvantage*

- Additionally including all six predictor sets as covariates
  - ⇒ *Fully adjusted training disadvantage*

- Change in estimated training disadvantage from removing one set of predictors
  - ⇒ *Explanatory contribution of respective predictor set*
  - ⇒ Shapley-decomposition approach to address path dependency

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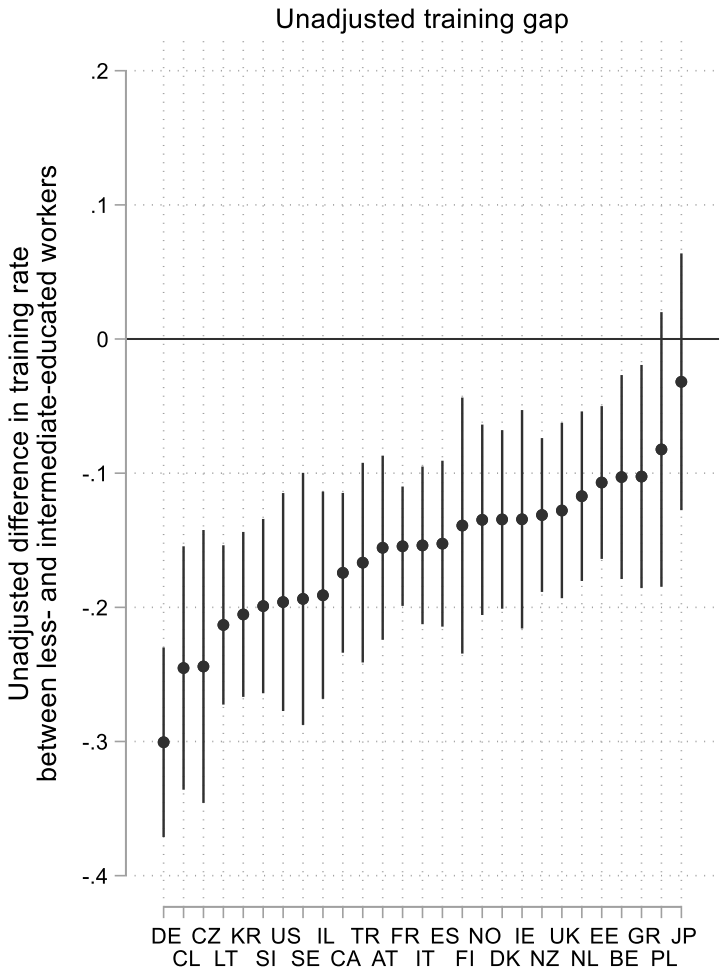
Training disadvantage of less-educated workers



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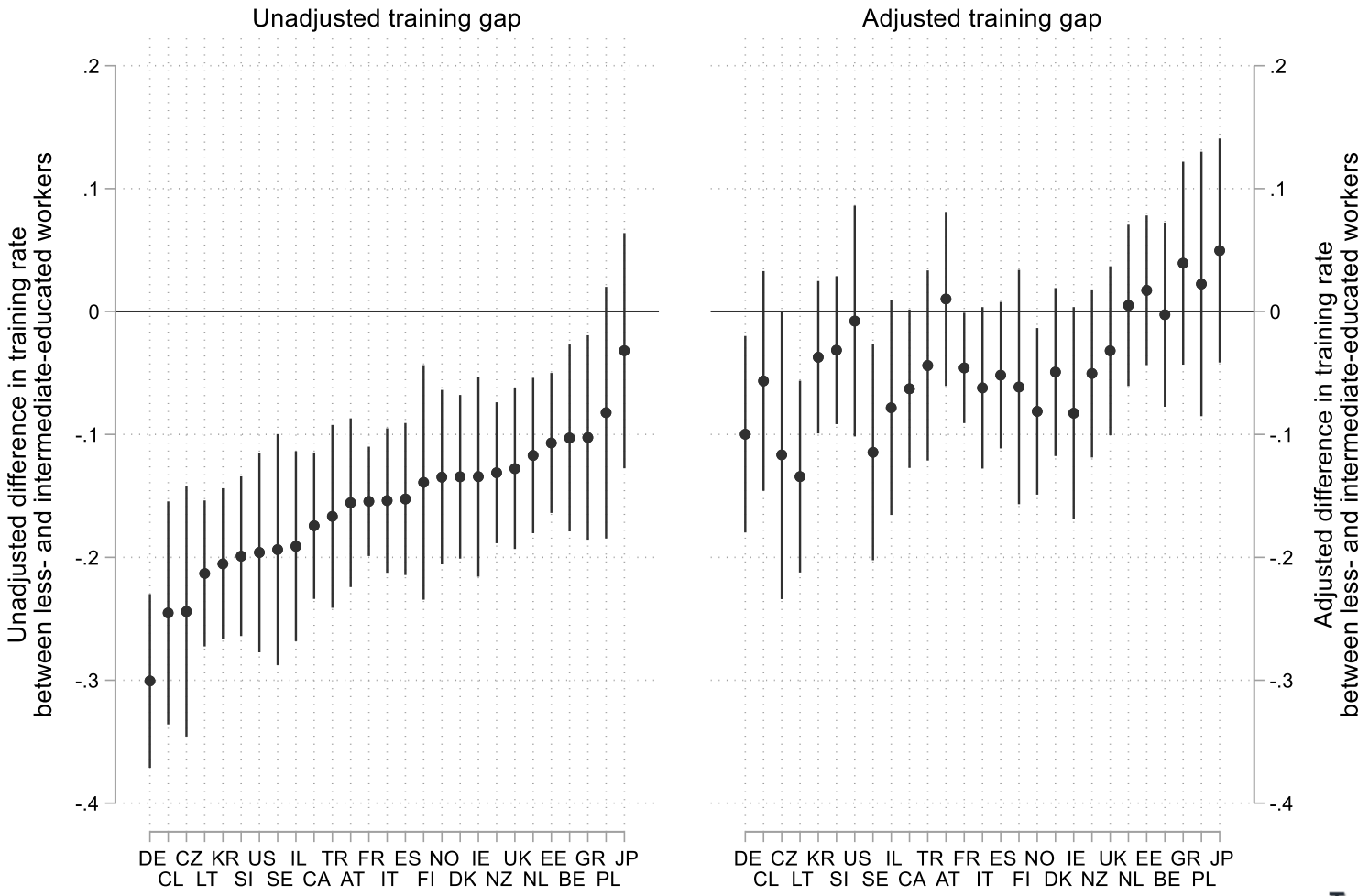
Training disadvantage of less-educated workers

(before-after adjustment for worker and job allocation characteristics)



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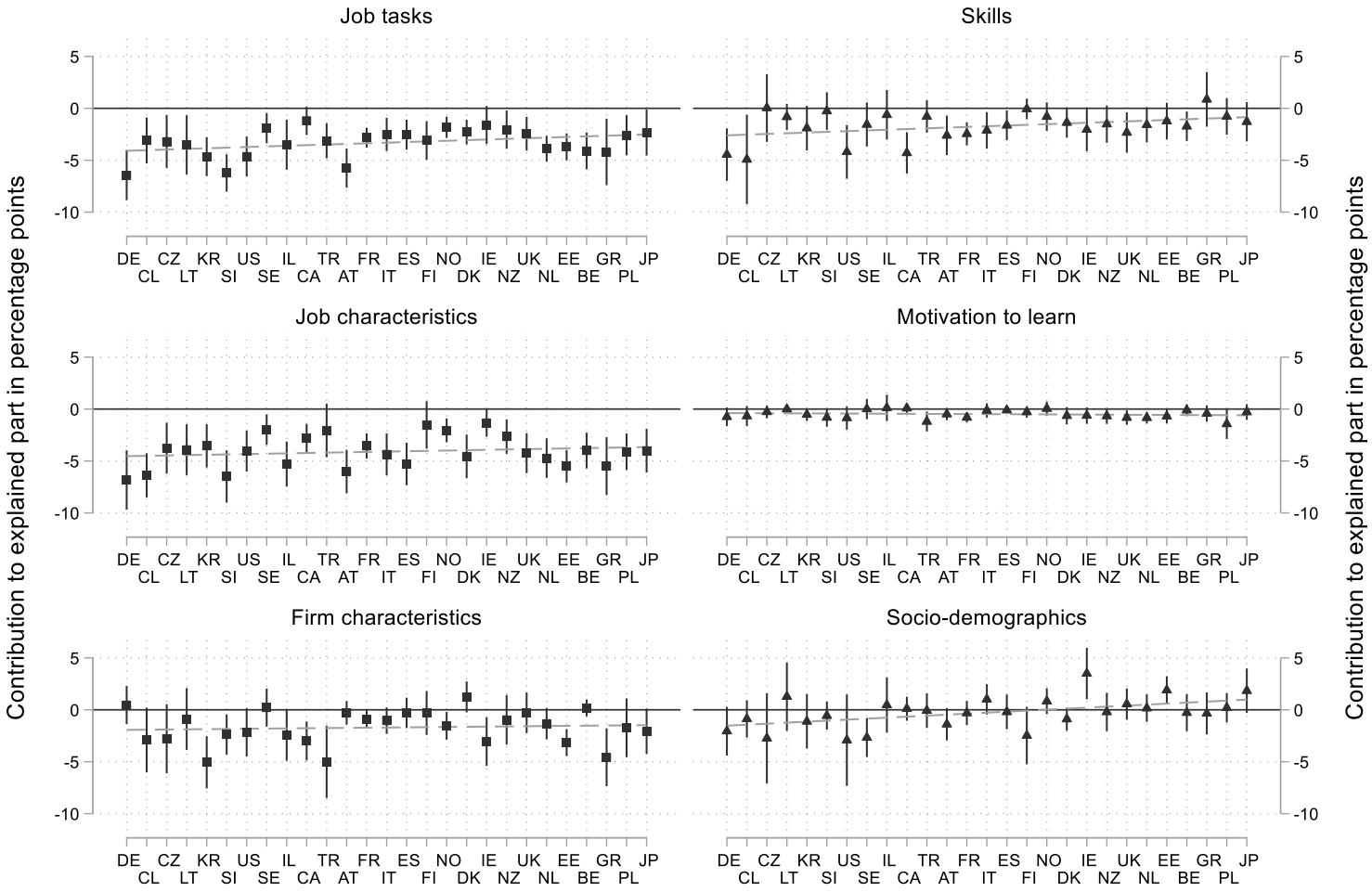
Role of job allocation vs. skills

Country	Country code	Unadjusted training disadvantage	Total explained part of the training disadv.	Explained part attributable to…	
				Job allocation	Worker characteristics
Germany	DE	-30.1***	-20.1***	-12.1***	-8.0***
Chile	CL	-24.5***	-18.9***	-12.2***	-6.6*
Czech Rep.	CZ	-24.4***	-12.7***	-9.6***	-3.1
Lithuania	LT	-21.3***	-7.9**	-7.9***	0.0
South Korea	KR	-20.5***	-16.8***	-13.1***	-3.7*
Slovenia	SI	-19.9***	-16.8***	-14.8***	-2.0
United States	US	-19.6***	-18.8***	-10.5***	-8.3**
Sweden	SE	-19.4***	-7.9***	-3.4*	-4.5**
Israel	IL	-19.1***	-11.3***	-11.0***	-0.3
Canada	CA	-17.4***	-11.1***	-7.0***	-4.1***
Turkey	TR	-16.7***	-12.3***	-10.2***	-2.1+
Austria	AT	-15.6***	-16.6***	-11.7***	-4.9***
France	FR	-15.4***	-10.9***	-7.2***	-3.7***
Italy	IT	-15.4***	-9.2***	-7.7***	-1.5
Spain	ES	-15.3***	-10.1***	-8.0***	-2.0+
Finland	FI	-13.9**	-7.8***	-4.8**	-2.9*
Norway	NO	-13.5***	-5.4***	-5.4***	0.0
Denmark	DK	-13.4***	-8.5***	-5.3***	-3.3**
Ireland	IE	-13.4**	-5.2*	-5.9***	0.8
New Zealand	NZ	-13.1***	-8.1***	-5.5**	-2.6+
United Kingdom	UK	-12.8***	-9.6***	-6.7***	-2.9*
Netherlands	NL	-11.7***	-12.2***	-9.7***	-2.5+
Estonia	EE	-10.7***	-12.4***	-11.9***	-0.5
Belgium	BE	-10.3**	-10.0***	-7.7***	-2.3+
Greece	GR	-10.3*	-14.2***	-14.1***	-0.0
Poland	PL	-8.2	-10.5***	-8.1***	-2.4+
Japan	JP	-3.2	-8.1***	-8.3***	0.1

Role of job allocation vs. skills, disaggregated



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Role of educational and labor market institutions

Labor market characteristics

- High **collective bargaining coverage** *decreases* training disadvantage of less-educated workers by allocation to „better“ jobs / *increases* disadvantage net of job allocation by focusing on skilled employees in training commitment
- High **wage inequality** *increases* training disadvantage of less-educated workers by reducing employers’ financial investment profits

Initial education

- High **segregation in secondary education** and high **skills gap btw. less- and intermediate-educated adults** *increases* training disadvantage of less-educated workers by increasing skills transparency of educational degrees

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Conclusion / Policy implications

- Characteristics of jobs and workplaces (i.e., tasks, work hours, industry sector) are more important for the training disadvantage of less-educated workers than characteristics of workers themselves (i.e., skills, motivation)
- Mutually reinforcing relationship between job allocation and training participation across countries creates vicious cycle for less-educated workers
- Policies aimed at increasing less-educated workers' participation in job-related NFT should focus on workplace conditions and associated barriers
- Account for country differences (institutions matter!)

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Policy recommendations

⇒ **Involve employers**

⇒ **Identify existing skills of less-educated adults**

⇒ **Provide targeted training measures** to close skills gaps (target reforms also to initial education)

⇒ **Intensify outreach activities** to increase awareness

⇒ **Regulate education leave and provide financial support and incentives** also for workers in atypical employment

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Thank you for your attention!