

What drives workers' participation in digital skills training? Evidence from Cedefop's second European skills and jobs survey

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Abstract

This study explores who are the digital under-skilled and which characteristics are associated with undertaking digital skills training in the EU workforce. The analysis shows that:

- (i) approximately 13% of EU workers experience a significant digital skills mismatch;
- (ii) job-skills requirements are the strongest drivers of participation in digital skills training;
- (iii) individual attitudes and perceptions (e.g. fear of automation) towards technology are also important drivers.

Motivation

Digital skills mismatches have been high on the EU policy agenda for some time. Skills mismatches are a concern for policymakers and researchers as they are closely associated with negative labour market outcomes. Training is one policy instrument that can be implemented to address skills mismatches. This study contributes to policy on provision of digital skills by investigating what type of job-skill mismatches explain the probability of digital skills training participation and whether this probability is affected by exposure to or fear of task automation due to new digital technologies.

Data

- ESJS2
- Eurostat country-level indicators
- Future: European Structural and Investment Funds (ESIF) 2014-2020 for the Digital Decade Policy Programme

Methodology

(1) We run a **multivariate logit model** (N=42,000) where the dependent variable equals: 0 for no training; 1 for digital skills training; and 2 for non-ICT training. We include different sets of controls: (i) individual, job and institutional characteristics; (ii) job-skill requirements; (iii) individuals' perceptions and experience of automation and individuals' attitude towards technology.

(2) To tackle potential sources of endogeneity in the training participation, we will implement a **shift-share instrumental variable (IV)** approach based on the ESIF data, exploiting the information on funds available across Member States to foster digital skills, to as well examine whether digital skills training may affect skills deficit, job satisfaction, and wages.

Results

Around 13% of EU workers experience a significant digital skills mismatch, highlighting the need for upskilling and reskilling to adapt to new digital technologies. Participation in digital skills training is strongly influenced by job-skill requirements and individual attitudes towards technology, such as fear of automation.

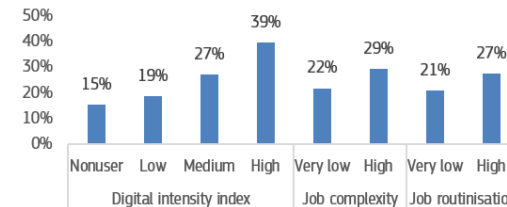
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Digital skills training								
Job-skill mismatch								
Digital under-skilled	0.2306***	0.2270***	0.2090***	0.1245***	0.1166***	0.1123***	0.1183***	0.1126***
Matched to ed. qualification								
Over-educated		-0.0328***	-0.0472***	-0.0077*	-0.0087*	-0.0060	-0.0051	-0.0041
Under-educated		0.0411***	0.0779***	0.0238***	0.0238***	0.0202***	0.0210***	0.0192***
N.	45921	45026	44613	44561	44278	41944	38037	40177
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual characteristics								
Vocational education								Yes
Job-skill requirements				Yes	Yes	Yes	Yes	Yes
Job organization					Yes	Yes	Yes	Yes
Job characteristics						Yes	Yes	Yes
Institutional characteristics								Yes

Marginal effects of multinomial logit regression (at sample mean values). Weighted estimates.

* p<0.10 ** p<0.05 *** p<0.01

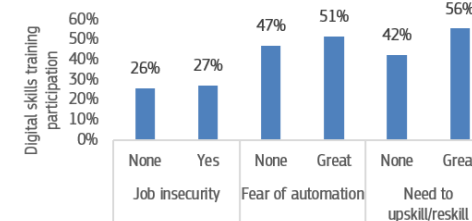
Note. Individual: Age, gender, rural, highest ed. completed, vocational qualification, perception of losing job. **Job-skill requirements:** Industry (NA CE1), Occupation (ISCO1), Scales (Digital intensity index, Basic skills (Read, Write, Math), Interpersonal skills, Manual skills, Job complexity, Job routinisation). **Job characteristics:** Tenure, private/public sector, workplace size, contract status, hours worked (week), monthly net payband. **Institutional:** Digital Economy and Society Index dimensions (Connectivity, Human capital, Integration of digital technology, Digital public services), GDPpc PPP, share of working age population (25-64).

Figure 3 – Digital skills training participation by job-skill complexity



Source: Authors' calculation based on Cedefop's second European Skills and Jobs Survey (ESJS2).

Figure 5 – Digital skills training participation by job insecurity and fear of automation



Source: Authors' calculation based on Cedefop's second European Skills and Jobs Survey (ESJS2).

Policy and research implications

- Policies should target those reporting a digital skills mismatch but not participating in any digital skills training, and workers with a higher chance of reallocation due to new digital technologies.
- Education and training initiatives should take both individual attitudes and specific job-skill requirements into account.
- More research on motivation and incentives for training, quality of training and its impact is needed.
- More comprehensive measures of digital skills mismatch may enable better targeting and implementation of education and training.

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