When and where does adult learning happen? A cohort analysis of adult education acquisition in Europe

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Introduction

- Upskilling and in particular adult learning are viewed as a necessity for employment, innovation, competitiveness and growth
- But do we really understand to what extent adult learning happens in Europe? How can we measure and observe adult learning? Does upskilling happen through participation in training or also through ISCED level upgrades?

1. **What (where) do adults learn?** We examine whether one can identify ISCED level upgrades across the adult population in European countries and compare these to participation in training

2. **When do adults learn?** We examine whether adults learn at any age in European countries
Previous findings and well-known facts about adult learning

1. Nordic countries display higher rates of participation in training (at the cost of providing shorter training periods than Southern-European countries):

*Figure 1: Participation in education and training: development in selected EU countries, 25-64*

Source: EUROSTAT, LFS Main indicators for lifelong learning: “Participated in training 4 weeks prior to survey date”
2. Younger cohorts are more educated than older cohorts (reasons might be: motivation, time issues):
3. Education begets education (reasons could be bad experiences, innate ability, non-cognitive skills):

Figure 3: Participation in formal and non-formal education by educational attainment, 25-64 (2007)

Previous findings and well-known facts about adult learning

4. Training participation highest in the third sector and technological-skill-intense sectors

*Figure 2: Participation in education and training in EU 27 in 2011, by NACE Rev. 2*

*Source: Eurostat*
We study the question using two approaches:

1. **Descriptive cohort analysis:** (1) Is there adult ISCED upskilling at all? (2) Do older cohorts still upgrade their ISCED levels? (2) How do different cohorts fare in terms of ISCED upskilling as opposed to participation in training?

2. **Regression analysis:** We produce accurate country comparisons and control for factors affecting the skill distributions across cohorts. (1) *Do training and ISCED upskilling go together across countries?* (2) *What determines either training or ISCED upskilling?*
Empirical Methodology and Data

Data

- We use the European Labour Force Survey (ELFS) 2000, 2005 and 2010 waves and construct five-year age cohorts.
- Synthetic panel: time series of independent cross sections since ELFS does not allow following up on individuals (anonymisation of individual identifiers).
  → Construction of cohort averages and their analysis as if they were independent repeated sample data if the cohort size is large enough i.e. 100-200 individuals\(^1\)

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\(^1\) Verbeek and Nijman 1992, Browning, Deaton and Irish 1985 and Blundell, Browning and Meghir 1989.
Potential reasons for measured up-grade in ISCED-levels (due to the synthetic and not true panel)

- Increase in ISCED level among the original population
- Change of composition of the cohort (migration, mortality)
  → Mortality: we assume that this concerns only the older cohorts and that those who mortality is independent of the skill distribution
  → Migration: migrants underrepresented in the ELFS, which reduces the bias. We also control for migrants in the regression analysis.
- Measurement error (change in definitions)
  → ISCED definitions do not change over time and it is reduced by relatively large cohort sizes

\(^2\) (Eurostat 2008 and Eurostat 2011)
Assumption: within 5 years individuals cannot jump from low to high education levels -> in order to identify changes in low education and high education

**Tables A1: Cohort analysis using the LFS macro data**

**EU27 Average**

<table>
<thead>
<tr>
<th></th>
<th>low</th>
<th>medium</th>
<th>high</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>From 25 to 34 years</td>
<td>25.7</td>
<td>51.4</td>
</tr>
<tr>
<td>2010</td>
<td>From 35 to 44 years</td>
<td>23.8</td>
<td>48.3</td>
</tr>
<tr>
<td>2000</td>
<td>From 35 to 44 years</td>
<td>30.7</td>
<td>48.3</td>
</tr>
<tr>
<td>2010</td>
<td>From 45 to 54 years</td>
<td>28.9</td>
<td>48.4</td>
</tr>
<tr>
<td>2000</td>
<td>From 45 to 54 years</td>
<td>39.1</td>
<td>42.4</td>
</tr>
<tr>
<td>2010</td>
<td>From 55 to 64 years</td>
<td>38.4</td>
<td>42.5</td>
</tr>
</tbody>
</table>
Results

Descriptive cohort analysis: Tertiary ISCED upskilling - difference in tertiary educational attainment between 2000 and 2010 by cohort, measured in percentage points

Source: European Labour Force Survey micro data, cohort averages weighted with frequency weights, sorted by the variance across generations per country.
Results

Descriptive cohort analysis: Tertiary ISCED upskilling

- Adult learning not only happens through participation in training but also through ISCED upskilling.
- Under our assumptions, upskilling from medium to the high education is in most countries larger in terms of percentage points than from low to medium.
- Differences in ISCED levels between 2000 and 2010 for the older generation are small (regression results show that cohort differences are significant).
- Countries with relatively large variance between generations are Nordic countries, CH, SI and EE; countries with low generational variance are CEE and Mediterranean countries.

→ Adult learning at later stages in life happens less frequently in Nordic countries (here: high level of education from the start); catching up effect of CEE and Mediterranean countries.
Results

Source: European Labour Force Survey micro data, cohort averages weighted with frequency weights
Results


- Mostly less training for the young cohort over time (except Netherlands)
- For older cohort picture is more mixed:
  - in some countries older cohort trains less over time: CH, IS, FI, NO, SE, ND, BE, HU, LI) mostly in Nordic countries (where ISCED upskilling is also strong at the beginning)
  - in other countries older cohort “catches up” and trains more over time: DK, SP, LUX
  - in countries with low training participation rates of older cohort, no change for this cohort over time (low and stays low)

→ most of the training still happens at the beginning, declines thereafter; only in some countries “catching up” of older cohort
Results

Descriptive cohort analysis: Participation in training across fixed age groups (2000-2010; 25-29 and 50-54)

Source: European Labour Force Survey micro data, cohort averages weighted with frequency weights
Results

Descriptive cohort analysis: Participation in training across fixed age groups (2000-2010; 25-29 and 50-54)

- In most countries increase of average training participation over time (mostly between 2000 and 2005, in many countries a slight decrease or stagnation thereafter; due to crisis?)
- Strongest increases over time (particularly 2000-2005) for young age group; for old age group also increases in most countries (in particular in Nordic countries), but weaker than for young age group
The coefficients show:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation training</th>
<th>Correlation ISCED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Married</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Migrant</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Unemployed</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tenure</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Part-time job</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Comparing training and ISCED upskilling across countries

Figure 12: Training and ISCED up-skilling in comparison

Source: own calculations from Table 1
Can this be explained by (earnings) returns to ISCED upskilling?

*Figure 13: Earning returns to education in 2009 (from upper-secondary to high education level)*

Source: OECD Indicator (Education at a glance)
Across Europe, adult learning happens not only through training but also through ISCED upskilling.

Training and ISCED up-skilling are not necessarily complementary.

Training and ISCED up-skilling happen both across and within cohorts; differences in generational variance can be observed across countries.

In terms of **Workplace training**:

1. Within cohort learning: Younger cohort invests less over time; older cohort might invest less, more or stable.
3. In countries with lower levels of participation in training older cohorts tend to catch up with the younger generation.

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\(^3\)Wolbers (2005)
Conclusions

- In terms of **ISCED upskilling**
  1. Countries with relatively large generational variance are Nordic countries; countries with low variance are CEE and Mediterranean countries
  2. CEE countries display a higher ISCED upskilling than other countries - this could be explained by higher returns to education (communism had historically suppressed ISCED5/6)
  3. CEE countries display more ISCED upskilling over the lifecycle than Nordic countries where graduation takes place earlier

→ catch-up effect in CEE countries
Thank you very much for your attention and questions. For more information see: www.neujobs.eu