SKILLS MISMATCH IN ETF PARTNER COUNTRIES

KEY FINDINGS AND RESEARCH INSIGHTS

Ben Kriechel
Senior Researcher, Economix Research & Consulting, Germany
WHAT AND WHY

Objectives:
- To document comparable sets of mismatch indicators across countries
- To support partner countries (PCs) expand / consolidate relevant statistics (e.g. VET vs general education; gender, narrower age groups)
- To engage PCs and ETF in similar global/European research initiatives

Collaboration:
- National Statistical Offices
- Country institutions and organisations relevant for skills and employment areas
- International community (ILO, CEDEFOP, Eurostat)

Method:
- Data retrieve (LFS microdata) – available online, microdata shared or remote statistical assistance
- Calculation script files shared with National Statistical Offices (NSOs)
- Exchange/clarifications (esp. education classification) /refinement of results and publication
Data: Labour Force Survey data sets (microdata) for 2016, 2017, 2018 and 2019 (if available)

Options:
• if access to LFS microdata is granted, the supporting research team (Economix) could run the calculation and share the results for checks and validation (including calculation scripts for future replication)
• If access could not be granted, research team can supply calculation scripts for calculating the indicators (in STATA, Python, R or SPSS) and support/guide the process of script running and interpretation of results.

Timeline:
• Phase I: June 2020 - February 2021 (calculations for the first group of countries);
• Phase II:
  • April – August 2021: checks / calculation / validation
  • September – November 2021: dissemination in country events (dates tbc) and international workshop (25 November)

Deliverables:
• Calculation scripts (adjusted to each country specificities) for future replication by country authorities
• Short country overview of mismatch measurement results
• Cross country report
## KEY MISMATCH INDICATORS (IN ADDITION TO BACKGROUND ONES)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Type</th>
<th>Definition</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vertical</strong></td>
<td>Over-education (over-qualification)</td>
<td>Worker’s level of education (qualification) exceeds the required level for the job (occupation)</td>
<td>Subjective&lt;br&gt;Normative (refers to the level of skills (education) required to work in a specific occupation category)&lt;br&gt;Empirical (the statistical or realized matches method) using either the mean or the mode of education within a occupation category; Job evaluation method</td>
</tr>
<tr>
<td></td>
<td>Under-education (under-qualification)</td>
<td>Worker’s level of education (qualification) is lower than the required level for the job (occupation)</td>
<td>As above</td>
</tr>
<tr>
<td><strong>Horizontal</strong></td>
<td>Field of education to occupation mismatch</td>
<td>The field of study does not match the occupational area of the job</td>
<td>Subjective (e.g. is your job matching your field of education?)&lt;br&gt;Objective (using ISCO and ISCED-F codes)</td>
</tr>
<tr>
<td><strong>Horizontal</strong></td>
<td>Field of education to occupation mismatch</td>
<td>The field of study does not match the occupational area of the job</td>
<td>Subjective (e.g. is your job matching your field of education?)&lt;br&gt;Objective (using ISCO and ISCED-F codes)</td>
</tr>
<tr>
<td><strong>Background</strong></td>
<td>Unemployment</td>
<td>Proportion of unemployed</td>
<td>Standard ILO definition. Breakdown by age groups and gender</td>
</tr>
<tr>
<td></td>
<td>NEET</td>
<td>Not in employment, education, or training</td>
<td>Proportion of young not in employment, education or training relative to the total population of the agegroup (15-19; 20-24; 25-29).</td>
</tr>
</tbody>
</table>
KEY FINDINGS
The empirical method determines from within the data the most common qualification in an occupation to be the required level.

We follow the ILO in using the mode of the qualification.

A mismatch occurs if there is a deviation from the required qualification.

**Overeducation**: the qualification level is above the required qualification

**Undereducation**: the qualification level is below the required qualification
OVER AND UNDER-EDUCATION (EMPIRICAL METHOD) ACROSS COUNTRIES IN 2019

- No clear trends across countries for over- and under-education.
- Under-education was more common in South-eastern European countries, while over-education was more likely to exist in EaP and Central Asian countries.
- Most countries experience a reduction in both over- and under-education rates between 2016-2019.

(*): Data are available in Egypt (2017), Jordan (2016)
OVER AND UNDER-EDUCATION (EMPIRICAL METHOD)
RESULTS SUMMARY

In 2019:

- In most of the selected ETF partner countries about one in four employees was either over- or under-educated in 2019, (in Egypt, Bosnia and Herzegovina, and North Macedonia the share is lower).
- Among all countries, Turkey and Armenia had the highest share of over-educated employees (about 35% and 30.6% in 2019) while the highest share of under-educated ones can be found in Tunisia (almost 45%), Bosnia and Herzegovina, Moldova and Montenegro (about one-fourth).

Gender differences:

- In Kosovo, Bosnia and Herzegovina, Ukraine and Georgia, Kyrgyzstan, men were more likely to be over-educated than women and in most of those countries, women were more likely to be under-educated than men.
- The opposite was true in almost all other countries of this study.
This method is based on comparisons of the ratio of employees with a given education level (ISCED) working in an occupation that does not require such a level of skills, as measured by the International Standard Classification of Occupations (ISCO).

Medium: upper secondary education working at skill level 1 (ISCO 9)

High: tertiary education degree, working at skill levels 1 (ISCO 9) or 2 (ISCO 4-8)
OCCUPATIONAL MISMATCH (NORMATIVE METHOD)
ACROSS COUNTRIES, IN 2019

(% of employees with upper-secondary education working in elementary occupations)

OCCUPATIONAL MISMATCH (high education) - righthand side
OCCUPATIONAL MISMATCH (medium education) - lefthand side

(*) Data are available in Egypt (2017), Jordan (2016)
• **Trends (2016-2019):**
  - High education mismatch increased in almost all SEE countries, but overall there were mixed outcomes;
  - Medium-education mismatch was overall stable with a few exceptions (increased in Armenia and Ukraine);

• **In 2019:** At least one in four employees was overeducated in most selected countries.

• **Overall:** Enlargement countries tended to experience higher shares of high-skilled mismatch while countries in the EaP were more likely to experience vertical skills mismatch at a medium education level;

• **Tertiary graduates:** at least one in four was overeducated in a vast majority of countries, but the incidence was higher (one in three) in Georgia, Turkey, and Ukraine, approaching one in two in Tunisia (for upper/post-secondary graduates the incidence is lower);

• **Young employees:** typically higher incidence for young employees in the vast majority of countries, (~40% of youth in Tunisia or Turkey and ~10% in Albania, Bosnia and Herzegovina and North Macedonia).
• Gender differences:
  • High education mismatch is more common among women in Belarus and Kyrgyzstan, while the opposite was true in Moldova;
  • Medium-skill mismatch was more common among women in Albania and Jordan

• Differences across age groups:
  • Young tertiary graduates (15-24 years old) with tertiary education have a higher incidence of over-skilling: one-fourth or more were mismatched (i.e. have held jobs requiring lower levels of formal-ISCED qualifications)
  • Graduation does not necessarily always lead to a matched integration in the labour market (human capital loss)
  • Determinants of overeducation?
The field of study does not match the occupational area of the job

- Discrepancy between a person's current occupation and their field of education related to the highest level of education attainment.
- The basic criterion used when assigning occupational codes to a field of education is the assumed congruence of skills acquired through the field of education and those needed on the job.
2.3. HORIZONTAL MISMATCH ACROSS COUNTRIES, IN 2019

- The horizontal mismatch rate was high across countries.
- Results are sensitive and depend on occupation classification (ISCO 88/08 at 1,2, or 3-digit levels, or national classification).
- Challenges to comparability across countries; within-country and across-time interpretation are recommended.

Note:
- In Armenia: Occupation is defined at the one-digit level
- In Georgia: Occupation is matched with profession (both ISCO-88, 3 digits)
- In Ukraine: Occupation and field of education are defined according to the national classification
- In Moldova: In 2019 the sampling and the survey weights differ from the previous years (not strictly comparable)
2.3. HORIZONTAL MISMATCH
WHICH QUALIFICATION ACCOUNT MOST FOR SKILLS MISMATCH?

- Where are the high levels of horizontal mismatch coming from and is this “real mismatch”?
- General programmes are ‘considered mismatch’ (which is not necessarily the case).
- The degree of mismatch also depends on the “width” of potential occupations: e.g., ‘Social sciences’ versus ‘Agriculture and veterinary’.

**Percentage of Mismatch (in Field) 2019, Albania**

<table>
<thead>
<tr>
<th>Field</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>100</td>
</tr>
<tr>
<td>Health and welfare</td>
<td>90</td>
</tr>
<tr>
<td>Agriculture and veterinary</td>
<td>70</td>
</tr>
<tr>
<td>Engineering, manufacturing and…</td>
<td>60</td>
</tr>
<tr>
<td>Computer science</td>
<td>50</td>
</tr>
<tr>
<td>Mathematics and statistics</td>
<td>40</td>
</tr>
<tr>
<td>Physical science (including physics,…)</td>
<td>30</td>
</tr>
<tr>
<td>Life science (including biology and…)</td>
<td>20</td>
</tr>
<tr>
<td>Science, mathematics and computing</td>
<td>10</td>
</tr>
<tr>
<td>Social sciences, business and law</td>
<td>10</td>
</tr>
<tr>
<td>Foreign languages</td>
<td>10</td>
</tr>
<tr>
<td>Humanities, languages and arts</td>
<td>10</td>
</tr>
<tr>
<td>Teacher training and education science</td>
<td>10</td>
</tr>
<tr>
<td>General programmes</td>
<td>10</td>
</tr>
</tbody>
</table>
2.3. HORIZONTAL MISMATCH RESULTS SUMMARY

• In 2019:
  • The share of horizontal mismatch is 60% or above in most of the selected ETF partner countries with an exception for Armenia (6.1%), and Belarus (48%)

• Gender differences:
  • The share of horizontally mismatched employees is higher for men than for women in most of the countries;
  • Greatest gender gap: in Kosovo, Egypt, Kyrgyzstan and Tunisia followed by Albania, Turkey and Jordan

• Limitations in the interpretation of this indicator
• Challenges to its comparability across countries
LIMITATIONS OF THE METHOD
The occupation classification sometimes was available only at the 1-2 digits level.

The occupation classification sometimes followed a national classification (not ISCO, e.g. Ukraine).

The field of education often followed national classifications that had to be re-converted in ISCED-F or was not always available (e.g. Kyrgyzstan).

Not always possible to identify medium-VET education.

Not always possible to identify upper-secondary education.

The match between ISCED-F and ISCO-08 codes had to be defined when either the classification or the number of digits were different from those used by Wolbers (2013).
COMPARABILITY ISSUES

• Data comparability across survey waves
  • For Moldova, the indicators calculated using the LFS survey wave of 2019 are not strictly comparable with those calculated using the previous survey waves;
  • For Georgia, the indicators calculated using the LFS survey wave of 2016 are not strictly comparable with those calculated using the previous survey waves

• Indicator comparability across countries (sensitivity analysis)
  • The horizontal mismatch indicator is higher when the level of digits increases (+10 pps. between one and two digits)
  • Vertical mismatch indicators slightly differ when calculated with occupations specified at a different digit level
OTHER LIMITATIONS

Informality
• Some indicators (e.g. those proxying skills using the qualification level) are less meaningful as on-the-job training and apprenticeships usually provide the necessary skills.

Migration:
• If mismatched individuals migrate abroad, we might underestimate the incidence of mismatch.

Interpretability of the indicators:
• Empirical method: it is a mechanistic measurement and should be interpreted as a proxy;
• Horizontal mismatch: the magnitude of the indicator should not be interpreted too strictly.
RECOMENDATIONS TO IMPROVE STATISTICS

• Standardize the classification of the field of education to the latest ISCED-F (ISCED-F 2013) for all education levels
• Occupation codes at the 3-digit level (ISCO classification)
• Where possible, keep the education classification consistent over time
• Specify which level of education is VET/high education
POLICY IMPLICATIONS AND NEXT STEPS
Interpretation of the indicators has limitations

Policy implications:

- Necessary to improve labour market matches for highly educated youth (overeducation, potential human capital loss)
- Necessary to align CVs (fields of education) with skills required on the labour market (coordination between stakeholders)
- Determinants of overeducation and horizontal mismatch?

Next steps:

- Improve survey design of the LFS
- Skills surveys
- Register data (LMI)
- Online vacancy surveys
REFERENCES

Eurostat – skills mismatch statistics
https://ec.europa.eu/eurostat/web/experimental-statistics/skills

ILO / International Conference of Labour Statisticians - Guidelines concerning measurement of qualifications and skills mismatches of persons in employment

CEDEFOP - Insights into skill shortages and skill mismatch

ETF reports on skills mismatch
Skills mismatch measurement in ETF partner countries
Skills mismatch measurement in Moldova
Skills mismatch measurement in Georgia
Skills mismatch measurement in Montenegro
Skills mismatch measurement in North Macedonia
Skills mismatch measurement in Serbia